Section V

Partnerships and Opportunities

- **Fishing Related Education and Research Action Plan**
- **Interpretive Facilities Action Plan**
- **Multicultural Outreach (MERITO) Action Plan**

Fishing Related Education and Research Action Plan

Goal

Educate the public about fishing issues in the Monterey Bay National Marine Sanctuary (MBNMS) and involve fishermen in research activities to add to the body of research available for fishery-related decision-making processes.

Introduction

There is a need to increase the public's understanding of fishes, their role in the ecosystem, the various fishing activities that occur in the MBNMS and how they are managed. This action plan provides strategies to expand the knowledge base of the public about fishery management in the MBNMS and increase public education about sustainable fisheries. There has traditionally been a lack of fishermen involvement in research activities related to fish populations in the MBNMS. This action plan addresses that issue by increasing their involvement and providing a mechanism to bring their knowledge and data into the pool of information used in resource management and decision making.

The commercial and recreational fishing industry constitutes a key component to the economic, historical, and cultural fabric of the region. More than 1,200 commercial fishing vessels operate in the region annually, along with substantial recreational fishing. More than 200 species of invertebrates and fishes were caught in the commercial and recreational fisheries in this region from 1981-2000, with more than 70 percent of the commercial fish landings composed of market squid, Pacific sardine, rockfishes, Dover sole, northern anchovy, Chinook salmon, mackerel, albacore, and sablefish.

Current involvement of the MBNMS in issues related to fishing includes conducting fisheries-related research, sponsoring educational events, commenting to other agencies on fishery and ecosystem management issues and the development of ecosystem protection plans related to fishing. The MBNMS has also continued its active role in the protection of the salmon and steelhead populations of the region through preservation of the watershed habitat and water quality that sustain these species during their migration and spawning activities. This includes watershed management and outreach activities with the agricultural community, cities and counties, education of the public about salmonid life cycles and habitat threats, and citizen monitoring of water quality in streams and rivers.

Strategy FER-1: Educate About Fisheries Management

Different agencies such as the California Department of Fish and Game (CDFG), National Marine Fisheries Service (NMFS), Pacific Fishery Management Council (PFMC), and National Marine Sanctuary Program (NMSP have different responsibilities regarding fishing. Sometimes they overlap, while providing different protections. This can lead to confusion among the public regarding the role of the MBNMS in fisheries issues, regulations, and mandates. The role of the MBNMS is to protect sanctuary resources using an ecosystem approach while facilitating uses compatible with the primary goal of resource protection. This strategy will help to clarify the role of the MBNMS in fisheries issues by creating outreach materials for the public outlining the roles, responsibilities, regulations, and mandates of the MBNMS and the National Marine

Sanctuary Program, and how the MBNMS's role compares to other fisheries management agencies and non-governmental organizations.

Activity 1.1: Develop Information Identifying MBNMS's Role in Fishery Issues

The MBNMS will develop necessary information identifying the NMSP's and MBNMS's roles and responsibilities related to fishing activities, fishing regulation, and the management of fisheries in the MBNMS. The MBNMS will produce outreach materials including written products and a web page to provide more information on the roles and responsibilities of the MBNMS in fishing issues. As the first step in embarking on this campaign, the target audience(s) needs to be identified (e.g., MBNMS visitors, non-visitors, local residents, families, or school children). The MBNMS may also conduct forums or other events to increase awareness of MBNMS responsibilities.

Strategy FER-2: Enhance Stakeholder and Public Communication

Historically, there is a lack of good communication and working relationship between the fishing community and natural resource managers. The MBNMS and fishing community would like to improve the communication between these groups in an effort to educate the public about fishing issues, and partner in research activities to better understand fishery resources in the MBNMS and provide a better understanding of the relationship between fishing issues and resource protection. Beginning in 2001, the MBNMS began working collaboratively with the Alliance of Communities for Sustainable Fisheries (Alliance) to evaluate the potential benefits and drawbacks of using marine protected areas to facilitate ecosystem conservation and sustainable fisheries. The Alliance is a self-formed group consisting of representatives of fishermen from most gear types from the main harbors around the MBNMS, and harbor office representatives.

Activity 2.1: Continue to Meet with Fishermen, Incorporate them into Relevant Committees and the Sanctuary Advisory Council (SAC)

The MBNMS currently has a recreational fishing seat and commercial fishing seat on the SAC. Members of the Alliance and other commercial and recreational fishing representatives should continue to be included in fishing related workgroups (Special Marine Protected Area [SMPA] workgroup) or events, and MBNMS staff should assist fishermen in gathering or presenting information as needed. The SMPA workgroup, which includes fishermen, scientists, and environmental organizations, is attempting to develop solutions that can protect MBNMS resources while sustaining the region's critical fishing industry.

Activity 2.2: Conduct Outreach to Fisherman to Increase Awareness of MBNMS's Roles, Responsibilities and Goals in Ecosystem Protection.

MBNMS will increase efforts to communicate to fishermen the responsibilities and goals of the MBNMS in protecting the ecosystem. Essential components of the outreach regarding ecosystem protection include the mandates set forth in the National Marine Sanctuaries Act (NMSA), the goals and objectives of the MBNMS management plan, and processes of coordination between MBNMS and fishery management agencies.

Activity 2.3: Develop a Communication Plan Between Parties Interested in Education and Research Issues Related to Fishing in the MBNMS

MBNMS will develop a plan to identify the channels, methods and messages necessary for communicating with fishermen, California Department of Fish and Game, National Marine Fisheries Service, Pacific Fishery Management Council, and others regarding actions taken by the MBNMS to protect the ecosystem that may affect fishing activities.

Activity 2.4: Investigate Partnership with the Fishermen's Collaborative Research Programs (e.g., San Luis Obispo Marine Interests Group, Pacific Marine Conservation Council's (PMCC) West Coast-Wide Program)

MBNMS should investigate a partnership with collaborative research programs to identify an MBNMS specific research project that fulfills research needs and uses fishermen's assets. The goal would be to identify research priorities, find funding, and improve communication and trust between fishermen, scientists, and fishery managers.

Activity 2.5: Develop a Series of Meetings Outlining Projects with Science Needs Using Fishermen's Skills and Assets

The MBNMS will investigate existing cooperative research programs, inform the regional community about existing programs, and provide an opportunity for fishermen to help design fisheries related research projects. The MBNMS will work with PMCC, fishermen, scientists, and resource managers to identify projects that will involve fishermen in collection of information, add to the body of knowledge of fisheries, and aid decision makers' fishing related actions.

Activity 2.6: Facilitate Public Forums and Development of Educational Materials for the General Public and Interested Parties to Understand Local Fisheries, Fish Populations and Habitats, and the Role of the MBNMS in Protecting the Ecosystem

The MBNMS will include fishermen, scientists, environmental representatives, and managers as speakers at public forums to educate the public and each other of the historical and current status, health, and practices of fisheries, fish populations, and habitats. The role of ecosystem protection by the Sanctuary in these habitats and populations will be included. This should include basic educational materials for the public.

Strategy FER-3: Facilitate Sustainable Fisheries Definition and Promotion

Fisheries resource management agencies make management decisions with the best available data, which is often limited. The fishing community within the MBNMS would like to know what information is needed to manage fisheries effectively and in a sustainable manner, what information is actually available, what data are used and how data-limited status translates into fishery regulations, and what types of data are lacking. In addition, they would like to know the causes of related discrepancies. Fishermen would like to participate in programs to collect data for fisheries management (e.g., observer and monitoring data). The public and fishing community would like more information to be disseminated on sustainable fisheries and practices. Information dissemination should include defining and identifying sustainable fisheries, identifying sustainable fishing techniques, and identifying the pros and cons of aquaculture. Audiences should include the public, consumers, markets, suppliers, and fishermen.

In addition, the facilitation of research on sustainable fisheries and how to minimize fishing impacts should be investigated.

Activity 3.1: Promote Biological and Socioeconomic Research on Sustainability

The MBNMS will work with partners to promote increased research on identifying and creating sustainable fisheries. The MBNMS will work with scientists, the fishing community, resource managers, and non-governmental organizations to develop collaborative research projects aimed at sustainable fisheries definition.

Activity 3.2: Work with Partners to Identify, Promote, and Certify Healthy Fisheries in the MBNMS

The MBNMS should work with National Oceanic and Atmospheric Administration (NOAA) Fisheries and other partners to explore and implement various outreach methods to existing and potential programs that promote healthy fisheries or healthy seafood choices. Various methods of outreach could include symposia, workshops, or "Fishing Day for Families."

Activity 3.3: Increase Outreach and Awareness of How Sustainability is Assessed

MBNMS will conduct outreach efforts to fishermen and the public regarding sustainable fishing practices. After determining the target audiences, outreach should help the public understand how stock size is estimated and determined sustainable, the costs and economics of fishing and not fishing sustainably, as well as understanding the sustainability of an ecosystem. The MBNMS should consider supporting or participating in events at a "Sustainable Fishing Festival."

Strategy FER-4: Involve Fishermen in Education and Outreach Programs

The fishing community possesses a wealth of historical fishery and at-sea knowledge that should be shared to create educational programs and products to better characterize the fishery resources, and historical and current user groups. Developing education programs and products on fishing issues should also involve other interested parties to achieve the educational goals and strategies outlined in this action plan. The MBNMS will provide the opportunity for the fishing community and other interested parties to review and comment on documents used for educating the public about fisheries. The MBNMS Advisory Council and Working Groups will also be instrumental in implementation of this strategy.

Activity 4.1: Evaluate Existing Outreach Efforts at a Sanctuary Education Panel (SEP) Meeting and Include Input from Fishermen and Other Interested Parties

The SEP currently meets to review program proposals, advise on educational priorities, and assist in implementation of programs to increase understanding and stewardship of the MBNMS. A SEP meeting should be dedicated to the evaluation of the progress of existing outreach efforts that address fishing, fish populations, and issues related to fish habitat. Input from fishermen and other interested parties should be solicited and considered.

Activity 4.2: Develop and Implement Interpretive Signage of Local Fishing Activities at Harbors

The MBNMS is currently planning interpretive signage at MBNMS harbors to describe maritime history and/or site-specific fishing activities (e.g., target species, vessel types, gear types). This activity should build upon the existing MBNMS effort.

Activity 4.3: Create Fishing Related Exhibits at MBNMS Visitor Center

The MBNMS is currently involved in developing a Visitor Center in Santa Cruz and creating other smaller interpretative exhibits. The Visitor Center and/or other exhibit space should include an exhibit highlighting fishing activities, information on fish populations, and current threats in the MBNMS. The fishing community will be invited to be involved in the planning and development of the exhibit(s).

Activity 4.4: Develop and Implement Education Program for K-12, "Mariners in the Classroom"

Educating the public often starts with children, who then teach their parents. "Mariners in the Classroom," is an education program for grades K-12, featuring fishermen in the classroom. Fishermen, fisheries scientists, or academics visit classrooms and present topics such as fishing techniques, natural history, biology, fisheries science, social science, and economics. Fishermen are compensated for their travel and time spent in the classroom. In addition, these visits often occur off-season. The MBNMS is exploring the implementation of a similar local program.

Strategy FER-5: Collect and Distribute Fisheries and Habitat Related Data

The general public and fishing community would like more information about the health and trends of fishery stocks, fish populations, and habitats in the MBNMS. Information collection and dissemination should address biodiversity, stock abundance, landings, habitats climatic and oceanographic cycles, and anthropogenic inputs. Collaborative research between fishermen, researchers, and other stakeholders is currently taking place on the east and west coasts of the United States. This type of collaborative effort is for those who wish to work together and better understand the fisheries and their role in marine ecosystems. Such a collaborative effort provides an opportunity for involved parties to add to the body of research available for fishery-related and marine ecosystem decision-making processes.

Activity 5.1: Coordinate with Fishery Management Agencies in Developing a Recurring Workshop Series with Interested Parties to Determine Existing Data, Efforts, Gaps, Overlap, and Develop a Coordinated Plan for Collection and Distribution of Marine Ecosystem and Fisheries Relevant Data

Activity 5.2: Consider Input from Fishermen and other Stakeholders in the Development, Synthesis, Collection, and Analyses of Data When Participating in Cooperative Fisheries Research

Activity 5.3: Include Fisheries Relevant Data in the Sanctuary Integrated Monitoring Network (SIMoN) Metadata Files and Website

Strategy FER-6: Collect and Distribute Socioeconomic, Cultural, and Historical Data

The commercial and recreational fishing industry constitutes a key component to the economic, historical, and cultural fabric of the region. There is a need to better understand fisheries as they relate to prehistory, maritime history, and present day socioeconomics, and to better educate the public about the fishing community. This activity will be conducted in close coordination with implementation of similar actions in the Maritime Heritage Action Plan.

Activity 6.1: Gather Oral Histories and Photographs of Fisheries and their Cultural Evolution (Past and Present) in the MBNMS

The MBNMS will work with the Monterey History & Art Association/Maritime Museum of Monterey to facilitate fishery related socioeconomic, cultural, and historical data collection and distribution of outreach materials. Implementation will also include a joint internship program between the Maritime Museum and MBNMS to assist in the collection and distribution.

Activity 6.2: Support and Develop Closer Involvement with the J.B. Phillips Historic Fisheries Symposium

The J.B. Phillips Historic Fisheries symposium hosted by the Monterey History & Art Association/Maritime Museum of Monterey brings together scientists, fishermen, historians, sociologists and fish market owners. Goals and objectives of the symposium and report are to (1) introduce the public to the history and science of the fisheries in Monterey Bay; (2) raise public awareness about the historic, economic, and political importance of the fisheries in Monterey Bay; and (3) give the public an opportunity to discuss these issues with scientists, policy makers, historians, and fishermen in a non-academic framework. Supporting and closely participating in the annual symposium may create a larger awareness of the local, historical fisheries.

Activity 6.3: Generate Cultural Profile and History of the Bottom Trawling Industry

Trawling is one of the oldest fisheries in the rich fishing culture of central California. However, the number of trawlers operating in the region has decreased over the years as increasingly restrictive regulation and declining stocks have forced some out of business while discouraging others from entering the fishery. The MBNMS will create a cultural and historical report profiling trawling in recognition of the region's fishing tradition and to preserve the history of the fishery. This activity will support and be conducted in coordination with implementation of the Impacts of Bottom Trawling to Benthic Habitats Action Plan.

Strategy FER-7: Conduct Public Outreach on Links Between Healthy Ecosystems and Fish Stocks

The decreasing trends in fish stocks are not always solely attributed to fishing pressure. Many aspects contribute to ecosystem health, stock size, and a healthy fishery. There is a need to increase public awareness about various impacts to ecosystems including fishing, pollution, and watershed health.

Activity 7.1: Consider Development of a Symposium to Focus on Coastal Water Quality Issues and the Influence of Water Quality on Healthy Fisheries

Activity 7.2: Facilitate an Assessment of What Is Known about the Links Between Ecosystems and Fisheries

MBNMS will work with partners to facilitate a report or literature review on the link between fisheries and healthy ecosystems. The report should identify all threats to MBNMS resources and discuss ecosystem changes associated with regime shifts, impacts associated with agriculture and water quality and the health of wetlands and local river systems as it relates to salmonid and other fish populations.

Activity 7.3: Add Information Regarding Various Components of Ecosystem to Interpretive Signage on Wharfs

MBNMS will develop interpretive materials that identify the importance of a healthy ecosystem to healthy fisheries.

Activity 7.4: Conduct Outreach to Target Audiences

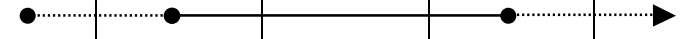
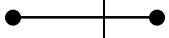
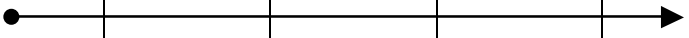
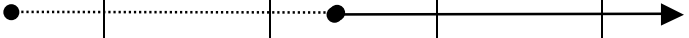
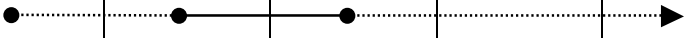
MBNMS will use the information collected from Activity 7.1 and 7.2 and incorporate the information into ecosystem health discussions targeted at schools, adults, ocean and beach user groups, and others with appropriate connections with the Water Quality Protection Program (WQPP).

Action Plan Partners: Fisheries management agencies (e.g., California Department of Fish and Game, National Marine Fisheries Service, Pacific Fishery Management Council), Fishing organizations (e.g., Alliance), individual fishermen, scientists, educators, Pacific Marine Conservation Council, Monterey History & Art Association/Maritime Museum of Monterey, academic institutions, Ocean Conservancy, Institute for Fisheries Resources, World Wildlife Fund (WWF's Community-Based Certification Program), Marine Stewardship Council, Monterey Bay Aquarium, Seafood Choice Alliance, California State Parks, Colleges/Universities with maritime concentrations, NGOs, UC Sea Grant

Table FER 1: Measuring Performance of the Fishing Related Education and Research Action Plan

Desired Outcome(s) For This Action Plan**:**	
Increase public awareness about fishing issues in the MBNMS and involve fishermen in research activities to add to the body of research available for fishery related decision-making processes.	
Performance Measures	**Explanation**
By 2010, increase Fishermen in Classroom program to provide outreach to 300 students each year.	Performance can be measured by tracking the number of students included in the Fisherman in Classroom program each year.

Table FER 2: Estimated Timelines for the Fishing Related Education and Research Action Plan

Fishing Related Education and Research Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy FER-1: Educate About Fisheries Management					
Strategy FER-2: Enhance Stakeholder and Public Communication					
Strategy FER-3: Facilitate Sustainable Fisheries Definition and Promotion					
Strategy FER-4: Involve Fishermen in Education and Outreach Programs					
Strategy FER-5: Collect and Distribute Fisheries and Habitat Related Data					
Strategy FER-6: Collect and Distribute Socioeconomic, Cultural, and Historical Data					
Strategy FER-7: Conduct Public Outreach on Links Between Healthy Ecosystems and Fish Stocks					

Legend

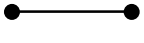
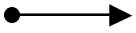
Year Beginning/Ending : 	Major Level of Implementation:
Ongoing Strategy : 	Minor Level of Implementation:

Table FER 3: Estimated Costs for the Fishing Related Education and Research Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy FER-1: Educate About Fisheries Management	$54.5	$0	$0	$0	$0
Strategy FER-2: Enhance Stakeholder and Public Communication	$78.5	$42.5	$42.5	$42.5	$42.5
Strategy FER-3: Facilitate Sustainable Fisheries Definition and Promotion	$20	$20	$29	$25	$20
Strategy FER-4: Involve Fishermen in Education and Outreach Programs	$22	$44	$14	$10	$6
Strategy FER-5: Collect and Distribute Fisheries and Habitat Related Data	$40	$135	$135	$135	$103
Strategy FER-6: Collect and Distribute Socioeconomic, Cultural, and Historical Data	$8	$8	$112	$12	$12
Strategy FER-7: Conduct Public Outreach on Links Between Healthy Ecosystems and Fish Stocks	$0	$0	$101	$26	$9
Total Estimated Annual Cost	*$223*	*$249.5*	*$433.5*	*$250.5*	*$192.5*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Interpretive Facilities Action Plan

Goal

Guide development of the Monterey Bay National Marine Sanctuary (MBNMS) centers and signage while exploring new opportunities for reaching constituents.

Figure IF-1: Interpretive signage at Point Pinos tidepools.

Introduction

An important issue facing the MBNMS is the lack of awareness of resource issues and threats to our local oceans. Facilities for education, research, and outreach provide a critical vehicle for interaction and developing a sense of stewardship with the constituent base of the MBNMS. The MBNMS must strive to increase interpretation of ocean resources through interpretive centers and other means.

No visitor centers exist within MBNMS boundaries that specifically interpret the MBNMS, the National Marine Sanctuary Program (NMSP), or the natural and cultural resources found therein. However, limited information and small exhibits are located in several State Parks and private visitor centers, including the Monterey Bay Aquarium (MBA). There is a three-sided interpretive kiosk (with audio) installed on the Municipal Wharf in Santa Cruz, interpreting the MBNMS, kelp forests and wildlife. The MBNMS currently has fifty-one general interpretive signs along the MBNMS shoreline located at strategic State Beaches, Parks and a variety of municipalities, extending from Pillar Point Harbor in Half Moon Bay, San Mateo County, south to Cambria, San Luis Obispo County. More recently, the MBNMS has focused on resource issue signage. Due to increased visitation and harvesting, there are a series of signs specific to tide pool resources and etiquette in Pacific Grove, the central region of the MBNMS, designed to reduce the threat of human impacts at locations where there is high public visitation. The MBNMS has also partnered with Friends of the Elephant Seal (FES) in the southern region to develop and install extensive interpretive signage at a highly visited turnout.

In conjunction with the resource protection plans related to water quality, harbor issue signs at Monterey and Moss Landing harbor boat launches that discuss discharge, pollution, and prevention have been installed along with oily bilge and sewage pump station signs. Regulatory signs for motorized personal watercraft (MPWCs) are posted at all four harbors. As of June 2003, two Internet Weather Kiosk interactive turnkey units were installed at the Monterey and Pillar Point Harbors at the harbormasters' offices. These have glass touch screens that are connected to the Internet to access up to date weather, sea state, surface temperature, and a variety of other links. These were piloted and updated with input from harbor users during the summer and fall of 2003.

Strategy IF-1: Construct and Operate Visitor Center

An interpretive center was identified in the original 1992 MBNMS Management Plan. The need is ever greater in 2004 to help raise public awareness of ocean issues, promote environmental stewardship, foster community support, and give the Sanctuary a more tangible presence. Visitor Centers can provide opportunities for more in-depth interpretation and exploration of MBNMS resources than coastal signage or publications. The 2001 Market Analysis and Interpretive Strategy for the NOAA National Marine Sanctuary System includes Visitor Centers as an interpretive medium that can effectively deliver clear messages to a diverse audience. The 2000 National Marine Sanctuary System Education Plan includes a goal of developing a network of interpretive facilities to heighten visitors' experiences and convey Sanctuary messages.

The MBNMS has an extensive coastline and could benefit from having a string of marine-themed, interpretive Visitor Centers to reach visitors equally in the northern, central, and southern portions of the coastline. Realistically, it will not be financially feasible to outfit and operate more than one large Visitor Center. The long-term vision, supported by numerous public scoping comments, is therefore to open one large Center and up to three smaller, regional interpretive facilities. Two locations have already been identified as potential sites for small "storefront" exhibit centers, located at Pigeon Point Lighthouse in San Mateo County and at William Randolph Hearst Memorial Park/State Beach in San Simeon.

In the City of Santa Cruz, the MBNMS envisions an interactive Visitor Center highlighting the MBNMS's extraordinary natural and cultural resources, the National Marine Sanctuary System and other NOAA programs, and the vital role citizens play as ocean stewards. Anticipated audiences include local residents, tourists, and school groups on field trips. Exhibits will be interactive and multimedia, and will include the possibility of real-time ocean images, virtual sanctuary experiences, aquaria and a wet touch tank. Many exhibits will be bilingual in English and Spanish. A secondary function of the facility is to be an orientation or "Welcome" Center to provide visitor information on the variety of nearby opportunities to experience the MBNMS or learn about the ocean.

MBNMS envisions a facility in the range of 12,000-14,000 square feet. The Visitor Center should blend well with the surrounding environment and utilize the best "green" technologies. Ideally, the Visitor Center will include exhibit and welcome space, a multimedia teaching lab/classroom, a public meeting room, a small bookstore, and ample support space including staff offices, storage areas, and restrooms. All public areas of the facility must meet ADA standards.

Activity 1.1: Develop Interpretation and Exhibit Plan for the Visitor Center

For the chosen Exploration Center site, the MBNMS will develop a comprehensive interpretation plan elaborating on the Center's intended mission, goals, audiences, interpretive themes and messages. The focus of the Center will be interpretation of the MBNMS, the NMSP, and all of the West Coast Sanctuaries. The Center will be designed to be a stand-alone educational experience, but will also include information referring visitors to complementary Sanctuary-related experiences, facilities, and marine education opportunities. As part of this activity, the MBNMS will:

A. Explore how other NOAA education facilities have provided for community involvement, and will consider establishing an advisory group for community participation in the Visitor Center planning process. Activities 1.2 and 1.3 should occur concurrently so they are well coordinated, synergistic, and ensure the best possible match between the facilities and the interpretation.
B. Develop the interpretive themes and messages, to include messages representative of the MBNMS and the NMSP.
C. Identify potential visitor and school/youth group programming for the Center.
D. Work with a contracted exhibit designer to develop specific exhibits for communicating the themes and messages, to include hands-on activities and multimedia displays.
E. Identify the regional interpretive opportunities and experiences to which visitors can be referred for further learning.

Activity 1.2: Develop Visitor Center Facilities and Operations Plan

For the chosen Visitor Center site, the MBNMS will develop a comprehensive facilities plan, elaborating on the Center's environmental, architectural, and financial requirements. The Visitor Center should blend well with the surrounding environment and utilize the best "green" technologies. Activities 1.1 and 1.2 should occur concurrently so they are well coordinated, synergistic, and ensure the best possible match between the facilities and the interpretation.

A. Review the preliminary geologic assessment provided by the initial feasibility study and conduct further site-specific geotechnical studies, as necessary.
B. Review sample architectural plans and work with a contracted architect to finalize external (if appropriate) and internal building designs and blueprints.
C. Develop a maintenance plan and schedule.
D. Refine rough estimates of capital cost and operating cost provided in the initial feasibility study.
E. Work with NMSP headquarters staff to initiate the necessary procedures and process for building construction, if needed.
F. Work with contracted experts to assess the need for and complete the appropriate environmental analyses, e.g., the National Environmental Policy Act (NEPA) or California Environmental Quality Act (CEQA) requirements.
G. Apply for and obtain the necessary permits.

Activity 1.3: Develop Visitor Center Business Plan and Implement Fundraising Strategies

While some federal construction funds may become available from NMSP appropriations, it is anticipated that federal funds will not cover all of the Visitor Center's capital costs. Significant fundraising from the public and private sectors will be needed to raise construction funds. A fundraising plan will be developed and implemented most likely with the assistance of the Monterey Bay Sanctuary Foundation (MBSF) and potentially the National Marine Sanctuary Foundation.

A. Develop a successful business plan including the following elements: a market analysis, an operations plan, a staffing/management plan, a marketing plan, and a financial plan.
B. Identify local community members who can provide fundraising guidance, and consider establishing a capital campaign committee to assist with efforts.
C. Identify potential funding sources in both the private and public sectors.
D. Identify a range of sponsorship opportunities that potential funders can support.
E. Utilize the interpretation plan and the facilities plan to demonstrate and promote the feasibility of the chosen site as a successful and effective Sanctuary Exploration Center.
F. Implement fundraising campaign.

Activity 1.4: Develop Visitor Center Education Plan

For the chosen Visitor Center site, the MBNMS will develop a comprehensive education plan, including programming for K-12 students, K-12 teachers and the public. This programming will be developed in alignment with multicultural pedagogy and may draw from existing MERITO education materials. The level of programming offered will be balanced by the financial realities of the Center.

A. Utilize the SEP as an advisory board for the development, implementation and assessment of education programs for the MBNMS Visitor Center.
B. Recruit, train, retain and motivate a dependable volunteer team, knowledgeable of the MBNMS program and resources, to support the Center's education programs and to offset staffing costs.
C. Develop an understanding of existing educational programs around Monterey Bay. Create MBNMS education programs for the Center to meet the needs of the community and the goals of the MBNMS while striving to complement existing programs.
D. Develop standards-based K-12 programs reinforcing California state science standards, the National Science Education Standards, NOAA Science and the mission of the MBNMS.
E. Develop professional development programs that empower K-12 teachers to integrate standards and resource-based marine science content and curriculum materials into their classrooms.
F. Develop a suite of public programs designed to engage visitors of all audiences in resource-based issues.
G. Ensure educational programs offered at the Visitor Center incorporate strategies, designs and materials to reach Hispanic audiences by utilizing the staff and strengths of the MERITO program.
H. Develop assessment instruments for programs and evaluate program effectiveness. Redesign programs based on evaluation results, as needed.

Activity 1.5: Construct and Outfit Visitor Center

With advice from facilities experts at NMSP headquarters, follow all NOAA construction guidelines and procedures. All interpretive installations will be done in conjunction with NMSP contractors, MBNMS staff, NMSP staff, and partners.

Strategy IF-2: Develop Smaller Regional Interpretive Facilities

Activity 2.1: Complete Exhibits at San Simeon and Pigeon Point Facilities

Opportunities for in-depth Sanctuary interpretation to geographically diverse audiences will be expanded by the development of several small regional interpretive facilities, or "storefront" Visitor Centers. Two locations are tentatively identified at Pigeon Point Lighthouse, Santa Cruz District, California State Parks in San Mateo County, and in the San Luis Coast District, California State Parks in San Luis Obispo County. These smaller interpretive venues will contain some aspects and messages contained in the larger Exploration Center, but will focus primarily on the unique resources (natural and cultural) of the regions in which they reside.

Activity 2.2: Develop Monterey Peninsula Regional Interpretive Facility

A smaller regional interpretive facility will be developed on the Monterey Peninsula after completion of the main Visitor Center in Santa Cruz. This facility will complement other facilities around the Monterey Bay as well as other interpretive facilities operated by the MBNMS. The Monterey Peninsula facility will be closely integrated with the Sanctuary Scenic Trail, which extends from Davenport to Pacific Grove.

Strategy IF-3: Increase Sanctuary-Wide Interpretive Signage

With over 275 miles of coastline, and almost as many access points, the MBNMS has a wealth of opportunities to reach visitors visiting its shores. A comprehensive interpretive signage program, implemented with partners having land-based jurisdiction over the coastline, will provide one piece of the overall Interpretive Facilities Plan. These potential partners include California State Parks, US Forest Service, local counties, cities, and other land trust entities.

In its first ten years, MBNMS focused on general signage with the basic MBNMS message. Now the MBNMS needs to focus on individual, custom messages to maximize resource protection and personal enjoyment of the MBNMS, highlighting the features of each location. The messages on these signs will increase general awareness of the unique nature of the MBNMS and its resources, interpret the ecosystems, human links, management initiatives of the MBNMS, and encourage stewardship of the MBNMS. Specific messages for signage may be identified through other action plans such as the Marine Mammal, Seabird, and Turtle Disturbance; Motorized Personal Water Craft; Tidepools; and other resource protection related plans. In addition to interpretive signs, this strategy includes interpretive kiosks and weather station kiosks.

The MBNMS is also fortunate to be surrounded by jurisdictions and agencies interested in enhancing public education about the MBNMS and the inspiring natural and cultural resources it protects. Since 1992, several regional plans have been developed for scenic coastal trails envisioned not only as recreation and transportation corridors but also as interpretive pathways highlighting the MBNMS. These trails have been planned to feature interpretive signs and displays that foster appreciation and stewardship of the marine Sanctuary and its shoreline communities. The regional government entities or community groups leading the planning efforts approached the MBNMS to solicit staff involvement early in the trail planning processes.

Activity 3.1: Develop and Maintain a Signage Inventory

A comprehensive inventory of the existing network of signs that interpret various aspects of the marine environment along the coastline of the MBNMS is needed to determine the baseline for additional signage. This inventory will include MBNMS signage as well as signage efforts of other agencies and organizations based along the central California coast.

A. Identify existing MBNMS signage, locations, type/materials used, and messages
B. Identify existing marine interpretive signage established by other agencies/organizations, locations, type/materials, messages and responsible entities (potential partners)
C. Create a matrix/map of current messages, locations, and partners

Activity 3.2: Develop an Implementation Plan for Signage

It is likely there will be some gaps in the placement of signs and/or interpretive messages along the coastline. Once new interpretive opportunities are identified, an implementation plan must be designed to determine the "when, where, who, how, and funding" for new signs. Since funding may be the main limiting factor, a tiered schedule for short-, medium-, and long-term projects will be incorporated, along with a periodic reassessment to determine if specific needs still exist. This must also include an assessment of the applicable environmental regulations, such as NEPA, CEQA, and other federal/state/local requirements. Finally, it must include a plan to maintain and upgrade signage to ensure that damage and weathering are addressed in a timely manner and that messages do not become obsolete.

A. Work with partners to identify additional signage needs, including locations and messages identified in other action plans
B. Assess the need for bilingual signage at specific locations based on user/visitor populations
C. Prioritize the need for signage at each location using a multi-year horizon (short-, medium-, and long-term projects)
D. Identify costs and create a project-specific budget based on the multi-year plan
E. Assess environmental impacts based on the multi-year plan
F. Develop a schedule for reassessing priorities, maintaining, and upgrading signs
G. Work with partners on the installation of signs

Activity 3.3: Support MBNMS-Related Interpretive Trail Projects

The MBNMS recognizes the valuable contribution to public education and awareness that an integrated system of "sanctuary scenic trails" along the coastline could bring. Since these coastal trails provide additional interpretive opportunities, it is our policy to provide support to other agencies and organizations involved in coastal trail development when there is a formal commitment to Sanctuary-related interpretation along the trail. MBNMS support may be provided to these partners through staff time and/or financial contributions for trail planning or implementation, resources allowing. Interpretive trail projects currently underway or on the horizon include:

A. *Santa Cruz County Sanctuary Scenic Trail*
Since 1998 MBNMS staff have assisted with planning for this thirteen-mile urban trail originally envisioned by local governments in Santa Cruz, with heavy involvement in development of interpretive messages and content. MBNMS funded the production of eight interpretive displays, and will continue to provide staff time for thematic guidance and content development as the trail interpretation is fully implemented.

B. *Monterey Bay Sanctuary Scenic Trail*
MBNMS staff have participated in planning for this trail (which will include the Santa Cruz County Sanctuary Scenic Trail) since the project's inception in 2001. Currently MBNMS is coordinating development of the trail's interpretive plan. This long-term effort will ultimately result in a forty-five-mile continuous coastal trail between Santa Cruz and Monterey.

C. *Half Moon Bay Coastal Trail*
MBNMS is currently exploring partnerships to provide interpretive signage along this partially completed nine-mile trail.

D. *Moonstone State Beach Trail*
MBNMS and State Parks are currently developing a signage plan for a new one-mile walkway at Moonstone State Beach in Cambria.

Strategy IF-4: Increase Virtual Experiences

In addition to the millions of people who visit the MBNMS each year, many more would like to but cannot travel to the central California coast. The technology to educate and reach these potential visitors exists in the form of "virtual experiences." These programs and products can be made available via the Internet, at Visitor Centers located far from the MBNMS, and as marketable products at museums and aquaria throughout the world. They can be made available in multiple languages and to those with auditory, visual or physical impairments. By combining live and pre-produced materials, a variety of informal learning environments can be created. These "virtual interpretive facilities" invite millions of people who may never come to Monterey to visit the MBNMS.

The NMSP considers telepresence to be an important outreach component for all National Marine Sanctuaries. MBNMS became a leader in telepresence technology in 2002 when images from a video camera installed in Monterey Bay were observed by visitors to the Immersion Theater in Mystic. The camera, attached to a tether, can be controlled by an operator 3,000 miles away. Now, visitors to the Mystic Aquarium regularly observe bat stars on the Monterey Bay seafloor, watch sea lions on the breakwater, and observe a cormorant nesting site. Plans for the future include adding camera sites at Florida Keys, Channel Islands, and Thunder Bay National Marine Sanctuaries, so visitors to a single location have the opportunity to visit several marine Sanctuaries. The MBNMS will coordinate with other sanctuaries to provide a comprehensive message of conservation throughout the NMSP program, using educational themes consistent with the NMSP educational goals.

Three primary mechanisms have been identified to visit the MBNMS from a distance: (1) the MBNMS website, (2) telepresence technology, and (3) videotapes and CD ROM's containing the

best images and footage of MBNMS habitats and wildlife. Each of these methods is discussed in the following activities.

Activity 4.1: Expand Virtual Interpretive Opportunities on MBNMS Website

A variety of options already exist for off-site users to appreciate the MBNMS. The MBNMS's award-winning website offers myriad learning opportunities and resources. The website can be expanded further to add more virtual experiences including:

A. Links to the numerous "Web cams" already in use throughout the MBNMS, including weather cams, critter cams, and surf cams.
B. Links to partner programs and sites, including sensitive species programs and safe wildlife viewing guidelines.
C. Development a Web tour of certain highlighted areas in the MBNMS. Visitors using the Web might be able to see and hear about the diversity of habitats and wildlife within MBNMS waters. The tour may include hard-to-reach areas such as the deep sea and open ocean. Informational and conservation messages would be included.

Activity 4.2: Expand Interpretive Opportunities Using Telepresence Technology

The term "telepresence" refers to the use of interactive technology, including live video cameras, operation of remote camera systems, robots, and underwater vehicles. Currently, images are transmitted using satellite and microwave technology coupled with Internet2 to distant locations. They provide opportunities for verbal, video or robotic interaction between the camera site and the visitor site. Visitors to telepresence sites may be able to ask questions of researchers, operate an underwater camera along a tether, explore a shipwreck, and observe marine organisms in their natural environment. Telepresence allows "real-time" interaction with our Sanctuaries by school groups, researchers, and the public, allowing them to watch researchers conduct their research and hear live accounts about their experiences. The telepresence idea has been piloted here in the Monterey Bay to the Mystic Aquarium and Institute for Exploration in Mystic Connecticut.

A. Continue MBNMS' participation in NOAA's developing telepresence program.
B. Explore the expansion of existing partnership with Mystic's program and the Institute For Exploration by adding a "diver cam" equipped with a speaker so that an underwater diver in Monterey can describe current conditions to visitors at the Mystic Aquarium in Connecticut.
C. Add telepresence capabilities to additional interpretive facilities, including the MBNMS Exploration Center and storefront exhibits as available.
D. Participate in research and education programs similar to those offered by the JASON Foundation for Education (JASON) as they arise.
E. Install additional topside video cameras at selected sites providing unique viewing opportunities in the MBNMS. Future potential camera locations include the Monterey Canyon, a mid-ocean site, a kelp forest, an elephant seal pupping beach, and a seabird rookery.

Activity 4.3: Expand Interpretive Opportunities Using Virtual Education Products

Consumers are interested in purchasing or receiving products to view or enjoy from the comfort of their home or vehicle. MBNMS has produced videos now available to education programs and teachers. Other possible products include:

A. CD-ROM, an interactive CD about Davidson Seamount.
B. CD Audio tour of MBNMS from southern to northern boundary (and the reverse) along Highway 1. As visitors drive along the Highway, they will stop at designated locations and listen to natural history information about the area.
C. Video of MBNMS ecosystems and habitats (20-30 minutes).

Action Plan Partners: California State Parks, San Mateo Coast Natural History Association, Friends of Hearst Castle, Monterey Bay Sanctuary Foundation, City of Santa Cruz, Monterey Bay Aquarium, Santa Cruz Museum of Natural History, US Forest Service, Bureau of Land Management's California Coastal National Monument, Gulf of the Farallones National Marine Sanctuary (in San Mateo County), San Luis Obispo, Monterey, Santa Cruz, and San Mateo Counties, numerous cities, and other land trust entities, National Marine Sanctuary Foundation, private parties, The NMSP Telepresence Initiative, Institute for Exploration,

Table IF 1: Measuring Performance of the Interpretive Facilities Action Plan

Desired Outcome(s) For This Action Plan**:**	
Provide a critical vehicle for interaction and developing a sense of stewardship with the constituent base by developing facilities for education, research and outreach.	
Performance Measures	**Explanation**
Construct and operate one major interpretive facility and two minor interpretive facilities by 2010.	The MBNMS will evaluate implementation of this action plan by measuring the progress in the construction, staffing, and operation of a major interpretive center, the MBNMS Interpretive Center, in Santa Cruz as well two minor interpretive facilities in San Simeon and Monterey. The long-term goal of increasing the knowledge about the MBNMS and development of the sense of stewardship will be evaluated separately.

Table IF 2: Estimated Timelines for the Interpretive Facilities Action Plan

Interpretive Facilities Action Plan	**YR 1**	**YR 2**	**YR 3**	**YR 4**	**YR 5**
Strategy IF-1: Construct and Operate Visitor Center					
Strategy IF-2: Develop Smaller Regional Interpretive Facilities					
Strategy IF-3: Increase Sanctuary-Wide Interpretive Signage					
Strategy IF-4: Increase Virtual Experiences					

Legend	
Year Beginning/Ending :	Major Level of Implementation:
Ongoing Strategy :	Minor Level of Implementation:

Table IF 3: Estimated Costs for the Interpretive Facilities Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy IF-1: Construct and Operate Visitor Center	$220	$4,172	$2,300	$520	$1,470
Strategy IF-2: Develop Smaller Regional Interpretive Facilities	$60	$0	$80	$880	$80
Strategy IF-3: Increase Sanctuary-Wide Interpretive Signage	$0	$24	$524	$508	$508
Strategy IF-4: Increase Virtual Experiences	$8	$29	$25	$25	$25
Total Estimated Annual Cost	*$288*	*$4,225*	*$2,929*	*$1,933*	*$2,083*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Ocean Literacy and Constituent Building Action Plan

Goal

Increase protection of sanctuary resources by building a greater understanding, in our highly diverse coastal communities, of the ocean's influence on people, and their influence on the ocean.

Introduction

This action plan addresses the need to cultivate an informed, involved constituency who cares about restoring, protecting and conserving our precious ocean resources. The Sanctuary will implement an integrated outreach program to pull together specific outreach and education activities outlined in other sections of this management plan and coordinate their execution, further developing the Sanctuary's relationships with its constituencies.

The National Marine Sanctuaries Act, National Marine Sanctuary Program, National Ocean Service and NOAA all identify the need to build a more informed and involved ocean literate public. The U.S. Commission on Ocean Policy's Final Report - *An Ocean Blueprint for the 21st Century*, also stresses the need to strengthen the nation's ocean awareness and to improve ocean-related education efforts as "critical to building an ocean stewardship ethic, strengthening the nation's science literacy, and creating a new generation of ocean leaders." The report concluded an interested, engaged public is an essential prerequisite "to successfully address complex ocean- and coastal-related issues, balance the use and conservation of marine resources, and realize future benefits from the ocean."

Ocean Literacy

A national survey by the Ocean Project (1999) indicates the American public has a superficial awareness of the importance of the ocean to their daily lives, let alone its importance to all life on the planet. The *Ocean Blueprint* goes on to state, "The ocean is a source of food and medicine, controls global climate, provides energy, supplies jobs, supports economies, and reveals information about the planet not gained from any other source. While most people do not recognize the number of benefits the ocean provides, or its potential for further discovery, many do feel a positive connection with it, sensing perhaps the vitality of the sea is directly related to human survival."

In an effort to correct this lack of awareness, the Office of National Marine Sanctuaries has partnered with the National Geographic Society, the Centers for Ocean Sciences Education Excellence (COSEE) and the College of Exploration to identify the critical elements of ocean literacy in the context of science. Ocean literacy is defined as "an understanding of the ocean's influence on you – and your influence on the ocean." An ocean-literate person understands:

- the essential principles and fundamental concepts of ocean science (listed below),
- can communicate about the oceans in a meaningful way,
- is able to make informed and responsible decisions regarding the oceans and its resources.

Seven Essential Principles of Ocean Literacy

1. The Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of the earth.
3. The ocean is a major influence on weather and climate.
4. The ocean makes the Earth habitable.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably linked.
7. The ocean is largely unexplored.

Each of these seven essential principles has a series of fundamental concepts – clarifying basic concepts within each principle. For a complete listing of the essential principles and fundamental concepts, please see http://www.coexploration.org/oceanliteracy.

Ocean Stewardship

Ocean stewardship is the end point to the path that starts with ocean literacy. Without a passionate and ocean literate constituency, the goal of true ocean stewardship is meaningless. The *Ocean Blueprint* stresses, "The public should be armed not only with the knowledge and skills needed to make informed choices, but also with a sense of excitement. Individuals need to understand the importance of the ocean to their lives and realize how their individual actions affect the marine environment. Public understanding of human impacts on the marine environment will engender recognition of the benefits to be derived from well-managed ocean resources. Because of the connection among the oceans, the atmosphere, and the land, inland communities need to be as informed and involved as seaside communities."

Repeatedly, through scoping, public comments echoed these statements. These comments very clearly fell into 5 categories: Increase efforts to inform the community about the issues affecting the sanctuary and how they can get involved; Develop a plan to better use volunteers; Create partnerships with community businesses, tourism boards and chambers of commerce; Increase K-12 public education efforts and; Address multicultural programming. Sanctuary constituents know there are issues facing the sanctuary, they want to know more, and they want to get involved.

Outreach to the diverse constituents of the MBNMS should be coordinated closely with issues and activities identified in the individual action plans detailed throughout this plan. A vigorous, public outreach and education effort bridging community concerns and needs with measures applied to protect the resources of the Sanctuary will galvanize broader support for ocean conservation and the sanctuary's work. Such support will increase the sanctuary's ability to effectively protect central California's marine resources.

Strategy OLCB-1: Develop and Implement Constituent Outreach Programs to increase Ocean Literacy.

Research has shown a healthy marine environment is essential for high quality of life and ecosystem health on land (consider the effects of beach closures). However, recent surveys indicate that many people consider the marine environment a second-tier environmental concern, overshadowed problems of air and water pollution and toxic waste disposal. In addition, while most Americans realize the marine environment can be degraded as a result of human activities, they are less clear about the role individuals play in contributing to this damage. Nearly half the public mistakenly agrees with the statement, "What I do in my lifetime doesn't impact ocean health much at all." (as referenced in *An Ocean Blueprint for the 21st Century*)

Public information needs are as varied as our population is diverse. Some individuals benefit from detailed information on how specific issues directly affect their jobs or business. Others may need information presented in a language or media tailored to their culture and community. Others may seek advice on how to alter their own activities to support responsible ocean stewardship. This information is as critical for those who live in the heartland as for those who live near the shore. Informal education requires outreach programs, in partnership with local communities, to make contact with individuals where they live and work, regarding issues affecting how they live and work, in a style that speaks to them.

The Blueprint goes on to state, "Information supplied to the public must be timely and accurate. It should also be supported by a system that allows for follow-up and the acquisition of additional information or guidance. The roles of, and relationships among, scientists, educators, and journalists in translating research results for the public are especially critical. Innovative partnerships with media outlets and industries that interact with the public offer opportunities to raise visibility of ocean issues and increase public awareness. Informal education facilities and the academic community must work closely with the media to transform the latest scientific discoveries into publicly accessible displays, materials, and programs."

Activity 1.1: Offer general ocean awareness programs and sanctuary information

Offerings will include presentations to general audiences including service clubs, Chambers of Commerce, non-profit organizations, partner groups/agencies. Staff will develop print materials, including brochures, newsletters, posters, annual and special reports, fact sheets and other materials with ocean literacy related messaging. Respond to requests from individuals and organizations. Hosting or participation in public events like the *Currents* Symposium, Earth Day, Whale Fest, Coastal Cleanup Day, and other similar events are essential for exposing the public to ocean and sanctuary messages. Staff will develop and deliver public outreach programs at MBNMS visitor centers to enhance their ocean knowledge. In addition, MBNMS will utilize the "Telepresence" technologies identified in the Interpretive Facilities Action Plan to increase public interest in the ocean and the nation's sanctuaries.

Activity 1.2: Partner with local and national partners to develop coordinated ocean literacy messages

Outreach and Communications staff will participate in the newly developed Ocean Communicator's Group to insure consistent sanctuary messages throughout the MBNMS, the State of California and the NMSP. Incorporating ocean literacy messages into the NMSP Ocean Etiquette Program, and creating consistent messages with NMSP, National Marine Fisheries Service, and Watchable Wildlife, Inc will be key to a successful targeted effort. The Sanctuary staff will work through the Sanctuary Education Panel (an Advisory Council working group) to create a conduit of information locally with other marine education programs. Working collaboratively on specific ocean literacy elements will create a much larger impact.

Activity 1.3: Increase public awareness of the sanctuary and ocean literacy issues through media exposure and marketing

The MBNMS will utilize contacts within the Ocean Communicator's Group to deliver consistent sanctuary messages to media outlets. Staff will work cooperatively with local media outlets by providing appropriate ocean literacy messages and materials (PSA's, radio, newspapers, weekly publications, and non-English media outlets), and explore travel and leisure magazine article opportunities

Strategy OLCB-2: Develop and Implement a Comprehensive Volunteer Program

Sanctuary staff alone cannot meet the goals set out in the Ocean Literacy and Constituency Building and other action plans without the assistance of trained and educated volunteers. Scoping comments not only confirmed the need for the sanctuary to create a volunteer program but also reflected the desire of many individuals to volunteer for the sanctuary. A well thought out volunteer plan is required to move this strategy forward. In addition to a plan, a program requires well defined volunteer roles, appropriate training, an organized system of maintaining contacts, tracking training and education programs, and a recognition component.

Activity 2.1: Assessment of volunteer needs within the Sanctuary's programming

Elements of this plan will include identifying the variety of volunteers required to support a broad spectrum of sanctuary needs (administrative, outreach & education, research & monitoring, resource protection) and requirements related to recruitment, training, tracking and retention of volunteers. An internal volunteer needs assessment will be conducted to determine how to best integrate the existing volunteer programming.

Activity 2.2: Identify funds and hire a Volunteer Coordinator

The sanctuary will assess the current staff composition to determine how it can best create a full time Volunteer Coordinator position.

Activity 2.3: Evaluate volunteer recruitment, retention and effectiveness of roles

Sanctuary staff will conduct informal assessments on a regular basis to identify and track the needs of the volunteer program. It is essential for volunteers to participate in the assessment of their positions in terms of value and purpose.

Strategy OLCB-3: Create Partnerships with Local Businesses

Partnerships form the backbone of many MBNMS programs. Partnerships encourage creative solutions to difficult issues while fostering a sense of ownership of programs from a wide-ranging audience. Without partnerships, the goals of the sanctuary could not be accomplished easily or seamlessly. Many members of the public are truly concerned and interested in being part of the sanctuary's mission of ocean literacy and education, as was mentioned from the scoping comments. With the correct materials and training the influence of the sanctuary can spread far and wide through partnerships with business leaders, technicians, and staff members.

Activity 3.1: Implement partnership opportunities with the restaurant and lodging industries.

MBNMS will offer staff training and outreach materials to members of the lodging and restaurant industries to identify ocean literacy, sustainability and other sanctuary concepts appropriate to their businesses. Trained business owners and staff can then use sanctuary materials to convey these messages to their clientele.

Activity 3.2: Explore partnership opportunities with "on-the-water" businesses.

MBNMS will work with appropriate SAC members to identify potential staff training and outreach materials to develop for recreational providers of "on the water experiences" to help identify ocean literacy, sustainability and other sanctuary concepts appropriate to their businesses. Trained business owners and staff can then use sanctuary materials to convey these messages to their clientele.

Activity 3.3: Explore additional partnership opportunities with businesses participating in the Water Quality Protection Program or identified in MBNMS Action Plans.

MBNMS will work with professional trade businesses to accomplish the goals of the WQPP, Beach Closure Program and other action plans. Through training and materials dissemination, trades workers will become outreach educators for the sanctuary to specialized target audiences who can influence water quality within the sanctuary. Other programs may utilize other professionals to assist in the education of specific audiences on their influence upon the MBNMS.

Strategy OLCB-4: Develop and Implement K-12 Education Programs to increase Ocean Literacy.

Among all disciplines, ocean and aquatic sciences are underrepresented in K-12 education. Concepts and topics about our ocean and hardly appear in K-12 curriculum materials, text books, assessments or standards. Educational standards are the strategic point of leverage for bringing about significant systemic change in the content of science education.

This strategy focuses on programs, designed to provide greater depth of information and attention to schools and non-formal education programs. Working cooperatively with the ONMS Education Team, MBNMS can develop messages consistent with both ocean literacy and MBNMS Action Plans. Regionally, MBNMS will work with other west coast sanctuaries to develop programs to educate people throughout CA/WA on ocean literacy concepts. The model for this already exists with the LiMPETS program. General classroom education programs will also be provided through the Visitor Centers in Santa Cruz and San Simeon.

Activity 4.1: Develop educational programs and supporting materials for school groups including those visiting MBNMS visitor centers.

The MBNMS will develop and implement K-12 education programs geared to increase ocean literacy and ocean stewardship among students. Programs will be based upon MBNMS resources and issues, relevant to what is being taught in K-12 classrooms, and relevant to existing and emerging California state standards. Programming content will be meaningful in ways aiding schools in addressing California standards. Ultimately, increased knowledge of ocean issues, and in particular the MBNMS, will allow students to be more active ocean stewards and to better understand the issues related to ocean management.

Activity 4.2: Provide teacher professional development programs utilizing sanctuary educational materials and promoting ocean literacy.

As the purveyors of education, teachers play an integral role in ocean literacy among students. The MBNMS will provide teachers with meaningful professional development experiences incorporating oceans, MBNMS issues, and instructional pedagogy. These experiences will be instrumental in ensuring long-term benefits to students, to the other community members they serve as teachers, and ultimately to the oceans.

Activity 4.3: Develop and make available sanctuary educational tools for use in schools.

Teachers continue to lack resources to provide quality science and environmental education. In response, and based upon input from teachers, the MBNMS will develop a suite of educational tools for use in schools designed to increase ocean literacy, understanding of the MBNMS, and understanding of resource-use issues within the MBNMS. Tools should also support programming outlined in strategies 4.1 and 4.2 and thus should be developed for both student and teacher audiences.

Activity 4.4: Develop ocean stewardship programming for K-12 students in conjunction with education partners.

The MBNMS, in conjunction with education partners, will develop programming for K-12 students designed to put ocean literacy into action through stewardship. The MBNMS and its partners will provide opportunities for students to conduct research tied to conservation, to participate in conservation related activities and programs, and to participate in meaningful outdoor experiences in which conservation and stewardship are a key element. MBNMS will explore the development of "Ocean Weeks," using these partners, for schools adjacent to the sanctuary.

Strategy OLCB-5: Implement the MBNMS Multicultural Education for Resources Threatening Oceans (MERITO) Program

In 2001, the Monterey Bay National Marine Sanctuary (MBNMS) developed a multicultural education program named Multicultural Education for Resource Issues Threatening Oceans (MERITO), in response to the changing demographics in Central California. Hispanics represent the fastest growing population in this region. Developing relationships with this large citizen group is a priority for the MBNMS. Although this action plan will focus on programs for Hispanic citizens, future plans will include efforts to reach additional culturally diverse groups.

The MERITO program was developed in collaboration and partnership with agencies and organizations serving Hispanics in an effort to provide expanded bilingual outreach and education about marine and coastal environments and their conservation to youth, teachers, adults, migrant families and community leaders. From October of 2000 to January 2001, MBNMS staff collected information (using a needs assessment tool) through thirty individual meetings with regional community leaders representing different community groups, school districts, universities, non-profit organizations, city, state and federal agencies, and the farm industry. Personal interviews resulted in a list of critical needs to address in order for the MBNMS to provide effective education for the Hispanic community. Based on needs identified through an assessment process, this strategy will seek to develop and deliver bilingual outreach programs and materials that will effectively inform Hispanic citizens about threats to marine and coastal environments. In addition, this strategy will strive to effectively engage Hispanic constituents in marine and coastal issues addressed in this management plan through programs and materials geared for diverse audiences. The needs, which represent the first phase of this effort include providing increased opportunities for classroom and field outreach experiences, bilingual outreach materials, college internships, teacher and youth leader professional development and training opportunities.

Activity 5.1: Community-Based Bilingual Outreach Program (After-school program, adult ed, field experiences)

MBNMS's MERITO Program will collaborate with K-12 schools, adult schools and community groups to build upon and foster new community-based outreach for Hispanic youth, adults, migrant families, and community leaders. Outreach programs will include the implementation of the existing Watershed Academy After-school program, adult education presentations, and MERITO's community field experiences.

A. Continue to provide classroom support, training and curriculum at the middle school level to increase marine and watershed education awareness and knowledge of water quality issues in Hispanic-serving schools through the Sanctuary's MERITO "Watershed Academy" program. Please visit MERITO website for more information on the "Watershed Academy."
B. Continue to deliver a train-the-trainer workshop to prepare teachers and youth leaders to implement the MERITO Watershed Academy at their site.
C. Involve agricultural, automotive and hospitality industry representatives and community leaders in the "Watershed Academy" programs and youth leader trainings.
D. Continue to provide a field-tested "lesson plan" to adult and community groups with the goal of developing an awareness and interest in visiting coastal sites and increasing their knowledge of specific MBNMS protection issues. Each "lesson plan" will be presented by a bilingual education specialist and include a Power Point presentation focused on particular priority issues related to MBNMS resource management such as coastal water quality issues, beach closures, wildlife disturbance, fishing, special marine protected areas, and more. The presentation will also include an interactive watershed model demonstration and a written evaluation.
E. Develop, pilot and implement a series of community leader briefings related to MBNMS priority issues. Each issue-based topic will become a campaign to inform community

leaders about specific issues that affect their community such as water quality, beach closures and marine protected areas, and provide a forum for increasing Hispanic participation in marine protection.

F. Develop a comprehensive schedule of marine and watershed conservation seminars, presentations and public meetings for Hispanic community members to participate in.
G. MBNMS will continue to provide a variety of field experiences for Hispanic families, adults, youth and community leaders, incorporating fun and learning in the context of important "take-home" conservation messages related to priority resource issues. This field experience program includes a three-part field series offering Hispanic community members the opportunity to participate in the MERITO "Tidepool Day," "Kayak Day," and "Slough Hike." This three-part series is offered in spring and again in fall for a total of six field experiences per year. MERITO staff will recruit for field experiences from adult education programs, community events and community leader briefings.
H. Continue to collaborate with the Water Quality Protection Program (WQPP) Agricultural and Rural Lands Plan to provide Spanish bilingual agricultural technical trainings addressing best practices.
I. Expand programs to additional Hispanic-serving schools and communities, if deemed effective.

Activity 5.2: Site-Based Bilingual Outreach Program (Demographic surveys, develop bilingual materials w/partners, support partner events)

Encouraging visitation by Hispanic (and other culturally diverse groups) is a huge challenge for many natural resource sites, centers, and parks across the nation. Many of these coastal sites fall under the jurisdiction of other governmental agencies, such as Elkhorn Slough National Estuarine Research Reserve (ESNERR) and California Department of Parks and Recreation (DPR) and assist in conveying the MBNMS message through these partnerships. By collaborating with these agencies, MBNMS will increase the understanding of currently existing barriers for audiences in coastal use areas and be more effective in reaching the Hispanic public. Increased visitation to such coastal sites will provide an opportunity for the Hispanic community to better understand the relationship of land to sea. Encouraging visitation to coastal partner sites that provide an introduction or information on the importance of the MBNMS will help bring awareness about the existence of a national marine Sanctuary and provide a forum to expand our message to new audiences.

A. Collect and compile existing and ongoing demographic data from coastal visitation sites, identify gaps in the data, and make recommendations on how to improve the survey data and methods.
B. Develop a formalized plan outlining the necessary survey tools and methods required to better understand how the Hispanic public utilizes coastal sites.
C. Assist partner sites in collecting demographic survey data in order to measure increased Hispanic visitation both related and unrelated to MERITO site-based outreach efforts.
D. MBNMS will continue to support partner field experiences that involve Hispanics in environmental activities including bilingual, in-nature programs such as (kayaking, tidepooling, whale watching) and walks (dune walks, birding hikes).

E. Increase marine and watershed education activities at identified Hispanic community events by providing an exhibit booth. MERITO staff will identify events and continued participation will be determined annually based on evaluation.
F. MBNMS will partner with agencies to identify the need to develop bilingual outreach materials including, but not limited to, lesson plans for adults and schools, a series of adult education worksheets, coloring books on storm drain pollution, books with stories of interest, newsletter articles, media products such as radio and TV Public Service Announcements (PSAs) and other interpretive brochures and materials. Currently, a limited number of Spanish-language products are available within the NMSP. Bilingual materials will be distributed through the appropriate community-based programs.

Activity 5.3: Teacher Training and Internship Program

This activity addresses the need for increased professional development opportunities for Hispanic-serving teachers focused on marine science, and increased paid-internship opportunities for Hispanic undergraduate and graduate level students.

A. Our partners at California State University, Monterey Bay (CSUMB) identified the need to provide effective professional development focused on marine science to in-service teachers. In addition, they state that the large influx of new teachers flooding Central California schools need effective tools to teach science to diverse students. Based on that data, the MBNMS will also continue to support partner institutions with professional development workshops.
B. CSUMB has also identified the need to provide marine-focused internships to undergraduate and graduate level students and, in the past, has received funding from NOAA's Environmental Entrepreneurship Program/Minority Serving Institution (NOAA MSI) grant to support this goal. The MERITO Bilingual Outreach Internship was implemented through this partnership for 2003 and 2004. MBNMS will continue to work with CSUMB to recruit, train and mentor Hispanic interns to assist MBNMS staff with implementing MERITO, collecting survey data, and a variety of other tasks listed on the MBNMS website.

This activity anticipates partnering with additional institutions as both the MERITO program and its internship opportunities grow. Potential partners could include Monterey Institute of International Studies and community colleges such as Hartnell and Monterey Peninsula College.

Activity 5.4: Comprehensive Communications Plan

Media is an effective outreach tool that will continue to be involved in all MERITO programs and projects. MBNMS will work with the NMSP West Coast Communication Team to effectively engage Spanish and other media groups, including print, radio, TV, and internet in delivering bilingual messages related to marine and coastal watershed protection.

A. Develop and implement targeted media products related to key MBNMS issues for Hispanic adults, migrant families, industry representatives and community leaders. Identify target audiences within the Hispanic community and develop targeted media products addressing specific resource issue outreach as part of the larger MBNMS communications plan. Such audiences may include automotive shops, restaurants, car

washes and more.

Activity 5.5: Integration of Multicultural Elements To Existing MBNMS Programs And Materials

MBNMS will build multicultural elements into existing programs and materials for education, resource protection, and research based on needs identified in the 2005 MBNMS Management Plan. Potential elements include Spanish-language signage, management plan materials, interpretive center information and new outreach materials. Costs for translation service, reprinting and production for existing outreach materials exist. Lastly, MERITO staff may need to provide bilingual services for outreach programs outside of education.

A. Over the next ten years, the MBNMS will transition into having Hispanic serving programs integrated into general education programs with the long-term goal of providing multicultural education and outreach in all of its programming strategies. In addition, MERITO will serve as a guide in shifting the education and outreach approach in the MBNMS and other Sanctuaries to better serve our entire communities using multicultural planning and pedagogy in program development and implementation.

Activity 5.6: Intra-Sanctuary Expansion of MERITO (CINMS expansion, regional website, expansion to other sanctuaries)

NOAA's NMSP supports using the MBNMS's Multicultural Education Program as a model multicultural marine conservation outreach and education program for other national marine Sanctuaries across the nation. This activity will focus on providing support to those Sanctuaries interested in developing a multicultural education initiative.

A. The MBNMS and CINMS will manage a contractor to conduct a thorough needs assessment of the gaps in marine and ocean education reaching multicultural audiences for the Channel Islands region. This contractor will work with the MBNMS and CINMS education coordinators to develop a plan for expanded program implementation.
B. The MBNMS, CINMS and the NMSP will recruit a contractor to develop a regional MERITO website to include current MBNMS and CINMS Web pages and act as a template for other sanctuaries as they develop their multicultural programs.
C. Over the next ten years, MERITO programming will be built into education programs throughout the California, west coast and other National Marine Sanctuaries as identified through regional needs.

Activity 5.7: Evaluation of MERITO Programs

In order to evaluate success in meeting the needs identified by the Hispanic community, MERITO developed a comprehensive evaluation plan for all MERITO programs. Through a partnership with NOAA's Coastal Services Center, MERITO now has in place a full evaluation plan allowing the MBNMS to track progress of short-, mid- and long-term outcomes for eight target audiences within the Hispanic community. Using a logic model as the main tool to develop the evaluation plan involved developing outcomes also reflecting those outcomes identified in other MBNMS priority issues. The evaluation process will include correlating the measurable goals identified for each activity and comparing their related short-term (one year) and long-term

(five year) outcomes, in order to measure the success/failure rate. MBNMS will continue to evaluate the MERITO program on an annual basis, making revisions as needed to improve tracking for outreach methods and strategies. Specific tools developed to evaluate program success include:

A. Individual community interviews to guide direction of MERITO programs done on an ongoing basis.
B. Pre and post-tests for students involved in the MERITO "Watershed Academy" as front end and formative assessment of knowledge gained through the program.
C. Pre and post community field experience interviews conducted over the phone to determine the impact of field experiences and retention of first time and repeat participants.
D. Adult presentation assessments conducted post presentation as a representative baseline for the community and comparison with the field experience evaluations.
E. Teacher training assessments given during the MERITO Watershed Academy Workshop and throughout the year.
F. Demographic surveys at partner sites to demonstrate the success/failure of the MERITO effort to promote partner sites through community-based programming.

For more information on critical needs, MERITO programs developed to meet those needs, or the MERITO evaluation plan visit http://montereybay.noaa.gov/educate/merito/welcome.html or request a MERITO program report.

Action Plan Partners: California Department of Parks and Recreation Monterey District; City of Salinas; City of Watsonville; Elkhorn Slough National Estuarine Research Reserve; Channel Islands National Marine Sanctuary; Monterey Bay Sanctuary Foundation; California State University, Monterey Bay – Recruitment in Science Education; California State University, Monterey Bay – Return of the Natives; City of Salinas; City of Watsonville; Monterey Bay Kayaks; Salinas Adult Education; Watsonville Adult Education; Agricultural Land-Based training Association; Municipal MPDS Permitees; Resource Conservation District of Monterey County; University of California Cooperative Extension; Boys & Girls Club of Monterey County; Monterey County Office of Education – Migrant Education; Monterey Peninsula Unified School District - Under the Big Top; Pájaro Valley Unified School District; Salvation Army; Monterey Bay – Earth System, Science & Policy Institute; Monterey Bay – Recruitment in Science Education; Monterey Bay – Service Learning Institute; Newspaper partners: The Californian and El Sol; The Register-Pajaronian; Radio partners: KLOK – Entravision Communications, KSES – Tres Colores/La Estrella; KHDC- Radio Bilingue: and Radio Campesina Television partners: KSMS – TV 67 Univision; Channel Islands National Marine Sanctuary; Gulf of the Farallones National Marine Sanctuary; Cordell Bank National Marine Sanctuary; National Marine Sanctuary Program; other Sanctuaries as identified

Table OLCB 1: Measuring Performance Ocean Literacy and Constituent Building Action Plan

Desired Outcome(s) For This Action Plan:	
Increase our diverse communities' understanding of ocean relationships and threats within the MBNMS and affect change in individual behavior.	
Performance Measures	**Explanation**
Increase MBNMS Outreach programming efforts to reach 15,000 individuals in 2005 to 50,000 individuals in 2010.	MBNMS staff will track the number of individuals that the program has reached on an annual basis. Additional tracking of performance will be conducted and reported through program funding and feedback mechanisms and may also be included in overall management plan tracking.
By 2010, increase participation of culturally diverse individuals in MBNMS events from 15,000 in 2005 to 30,000 in 2010	MBNMS will track the number of culturally diverse individuals participating in MBNMS events.

Table OLCB 2: Estimated Timelines For The Ocean Literacy and Constituent Building Action Plan

Ocean Literacy and Constituent Building Action Plan	**YR 1**	**YR 2**	**YR 3**	**YR 4**	**YR 5**
Strategy OLCB-1: Develop and Implement Constituent Outreach Programs to increase Ocean Literacy	●	→	→	→	→
Strategy OLCB-2: Develop and Implement a Comprehensive Volunteer Program	●	●	→	→	→
Strategy OLCB-3: Create Partnerships with Local Businesses		●	→	→	→
Strategy OLCB-4: Develop and Implement K-12 Education Programs to Increase Ocean Literacy			●	→	→
Strategy OLCB-5: Implement the MBNMS Multicultural Education for Resource Issues Threatening Oceans (MERITO) Program	●	→	→	→	→

Legend

Year Beginning/Ending : ●—●	Major Level of Implementation: ——
Ongoing Strategy : ●→	Minor Level of Implementation: .....

Table OLCB 3: Estimated Costs For The Ocean Literacy and Constituent Building Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy OLCB-1: Develop and Implement Constituent Outreach Programs to increase Ocean Literacy	$219.6	$219.6	$209	$209	$209
Strategy OLCB-2: Develop and Implement a Comprehensive Volunteer Program	$75	$151	$151	$151	$151
Strategy OLCB-3: Create Partnerships with Local Businesses	$0	$150	$175	$175	$150
Strategy OLCB-4: Develop and Implement K-12 Education Programs to Increase Ocean Literacy	$0	$0	$231.8	$231.8	$231.8
Strategy OLCB-5: Implement the MBNMS Multicultural Education for Resource Issues Threatening Oceans (MERITO) Program	$376	$367.5	$384	$370.5	$391
Total Estimated Annual Cost	*$670.60*	*$888.10*	*$1,150.80*	*$2,937.3*	*$1,132.80*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Section VI

Water Quality

- **Beach Closures and Microbial Contamination Action Plan**
- **Cruise Ship Discharges Action Plan**
- **Water Quality Protection Program Action Plan**

Beach Closures and Microbial Contamination Action Plan

Goal

Eliminate beach closures by reducing microbial contamination in Monterey Bay National Marine Sanctuary (MBNMS) waters.

Introduction

The central coast of California is internationally known for its incomparable shoreline. Travelers come from around the world to enjoy outstanding recreational opportunities including swimming, surfing, diving and kayaking; to view the spectacular coastal scenery; to observe wildlife resources such as sea otters, whales, and seabirds; and to enjoy the seemingly pristine beauty of the ocean. In 1992, public concern over the conservation of this exceptional resource led Congress to designate the MBNMS for its ecological significance and singular beauty.

During the designation of the Sanctuary in 1992, eight key water quality agencies within the Sanctuary region entered into a Memorandum of Agreement (MOA) to provide an ecosystem-based water quality management process. The agreement led to the development of the Sanctuary's Water Quality Protection Program (WQPP), a partnership of twenty-five federal, state and local agencies, and public and private groups dedicated to protecting and enhancing water quality in the Sanctuary and its watersheds. This partnership of MOA signatories, additional public agencies, non-governmental and private organizations are working as members of the WQPP Committee, which oversaw the development of four action plans entitled: Implementing Solutions to Urban Runoff; Regional Monitoring, Data Access, and Interagency Coordination; Marinas and Boating; and Agriculture and Rural Lands. Since the designation in 1992, runoff and spills along the MBNMS's coastline have periodically resulted in high levels of coliform bacteria being detected in coastal waters, resulting in hundreds of beach closures or warnings annually. This plan was initiated to address the issue of beach closures and will constitute the fifth action plan as part of the WQPP.

Microbial Contamination

Coliform bacteria are used as indicator organisms, and while they may not cause disease in humans, their presence tells us that water may be contaminated with organisms that do cause health impacts ranging from fever, flu-like symptoms, ear infection, respiratory illness, gastroenteritis, cryptosporidiosis, and hepatitis. Not only can humans be affected, but research into the cause of an alarming rise in mortality among the threatened southern sea otter population shows that infectious agents have been implicated in nearly 40 percent of these deaths. Preliminary data suggest that many of these deaths are caused by protozoal parasites and bacteria that are spread by fecal contamination of nearshore marine waters by terrestrial animals or humans.

The local economies are also affected by beach closures. Tourism is the second largest industry in the Central California region after agriculture. Although definitive statistics are lacking, because much of the tourism is related to the coast, an image of closed or contaminated beaches

could be a multi-million dollar threat to the local economy. A significant aquaculture and kelp harvesting industry within the MBNMS is highly dependent upon unpolluted water, and beach closures cost local economies tourist dollars and jobs, and represent a loss to those who had planned beach visits.

Sources of contaminated water include runoff from urban, suburban and rural areas, an aging sewer infrastructure system pressed to meet increasing demands, contaminated flows from creeks and rivers and unidentified sources. Contributing factors that generate these sources include illicit storm drain connections, improper disposal of materials that clog pipes and cause overflows, cracked or damaged pipes, overflow of sewer systems during storm events, septic system leaching, nonpoint pollutant loading exposed to storm runoff, and various domestic and wildlife sources.

Beach Closures and Warnings

Beach closures or warnings result from a known discharge of sewage, or laboratory results that indicate that the probable number of indicator organisms contained in a water sample exceed water quality standards. Since the identification of pathogens such as viruses in ocean water is difficult, time consuming, and expensive, current water quality testing methodology relies on the usage of the more readily detected and quantified coliform and fecal streptococci bacteria as indicator organisms. These organisms include total coliform, fecal coliform and enterococcus.

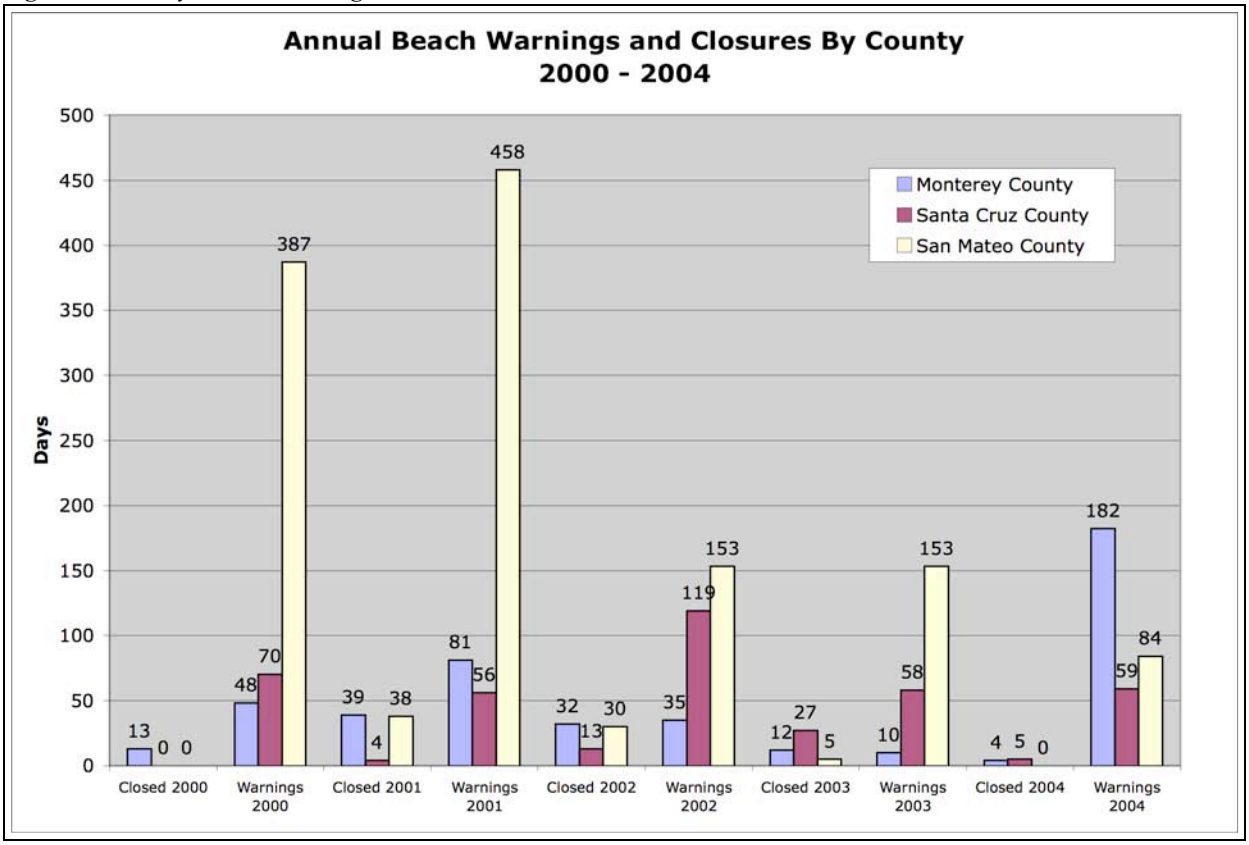
County Health Officers can take three discrete actions including closing a beach, issuing a warning, or announcing a rain advisory based on beach water quality monitoring data, sewage spills, and storm events.

A. "Beach (ocean) Closure" occurs because of a known sewage spill or from repeated incidences of exceeding bacterial standards due to an unknown source. A closure is a notice to the public that the water is unsafe for contact and that there is a high risk of getting ill from swimming in the water. When a beach is closed, signs are posted alerting the public to stay out of the water.
B. A "Beach Warning" sign means that at least one bacterial standard has been exceeded, but there is no known source of human sewage. The posting of warning signs alerts the public of a possible risk of illness associated with water contact. The placement of signs may be short-term, when a single bacterial indicator standard is exceeded, or more permanent where monitoring indicates repeated contamination (e.g., from a storm drain). Warnings may also be posted where sources of contamination are identifiable and can be explained as not of human origin (e.g., resident marine mammals or seabirds).
C. A "Rain Advisory" is often issued when it rains because it is known from past experience that rainwater carries pollution to the beach. After a rain, bacteria counts usually exceed the state standards for recreational water use.

It is important to recognize that there is a fundamental difference between beach closures and beach warnings. Beach closures result from known sewage spills or repeated exceedances of standards from unknown sources, whereas beach warnings are a result of an exceedance of standards, but where there is no known source of human sewage. Domestic discharges account for a high percentage of beach closures, but closures occur less frequently than warnings.

Beginning in 1999, AB411 required local health officers to conduct weekly bacterial testing—between April 1 and October 31—of waters adjacent to public beaches having more than 50,000 visitors annually and that are near storm drains flowing in the summer. This increased monitoring is responsible for a pronounced jump in the number of beach closures and postings between 1998 and 1999. Since this initial jump, MBNMS beaches have continued to suffer from hundreds of closures or postings annually.

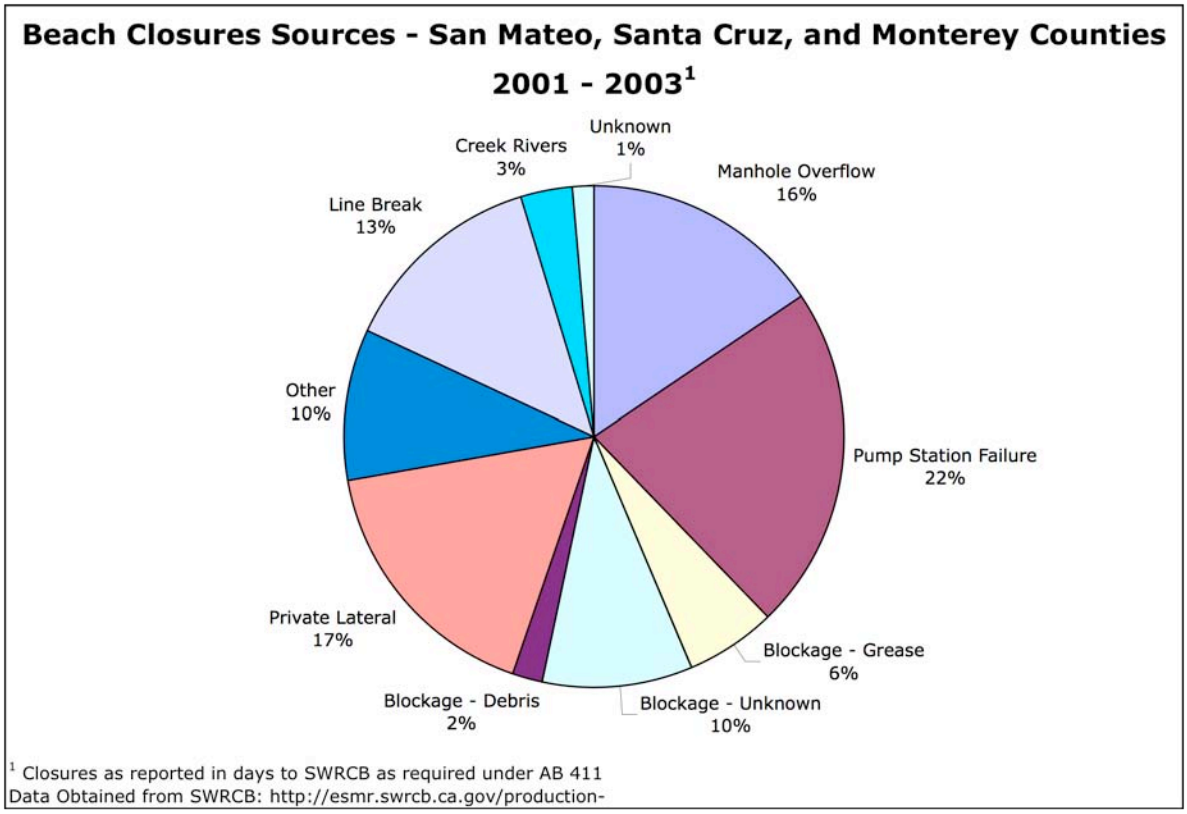
Figure 1. County Beach Warnings and Closures



While California has instituted the most comprehensive water quality monitoring programs in the nation, the program is compromised because current methods of enumerating indicator bacteria are too slow to provide full protection from exposure to waterborne pathogens. The methods used to monitor and post beaches are insufficient to accurately detect contamination and warn the public accordingly. Indicator bacteria assays take eighteen to thirty-six hours to complete, and during this time, beachgoers may be exposed to harmful pathogens. By the time the beach is posted, the indicator bacteria may no longer be present in the nearshore waters. Thus, a beach may be open when it is contaminated, and posted when it is clean. In addition, this lag time makes it difficult to track sources of microbiological contamination as the source has often become dispersed over a wide area by the time investigators arrive on the scene. Beach water quality monitoring is also temporally and geographically limited. Resources preclude environmental health departments from monitoring entire stretches of beaches, and at most, these locations are monitored bi-weekly. Recently published data show that temporal changes in indicator bacteria levels in beach water occur much more rapidly.

Many types of animals produce the indicator organisms, and a high percentage of beach closures and warnings are the result of unknown or diffuse sources. Data contained in the 2000 California Beach Closure Report shows statewide sources of contamination.

Figure 2. Sources of Closures



Domestic discharge represents an increased risk to human health and an emphasis will continue to be placed on the prevention of sewage spills through maintenance, repair, and illicit discharge detection from publicly owned sewage collection and treatment facilities. However, discharges from these facilities account for a small proportion of the total number of closures and postings. The majority of closures and postings are caused by diffuse or unknown sources, and strategies will need to be developed that effectively reduce the bacterial loading to these sources. A wide range of potential risks of disease are also associated with the diffuse nature of these sources, illustrating the need for strategies that further research and develop analyses that better characterize nearshore pollution and its effect on human and marine health.

Strategy BC-1: Enhance Use of Geographic Information System (GIS)

GIS can be a powerful tool that decision makers can use to define problems and allocate resources. Local jurisdictions are encouraged to utilize GIS when making decisions about infrastructure replacement or when performing upstream analysis. Project prioritization could be determined by their proximity to sensitive areas or heavily used beaches. For the purpose of this plan, GIS refers to any mapping or drawing package, whether or not data is externally referenced.

Activity 1.1: Map of Beach Sampling

The MBNMS will work with water quality program partners to produce a beach sampling database with maps indicating the sites and beaches in MBNMS that are sampled, the sampling

stations, and a time series function to visually display an individual beach's record of closures or of being "clean." This data will be prepared and used by MBNMS staff.

Activity 1.2: Expand and Continue to Encourage Local Jurisdictions to Map Septic Sewer and Storm Drain Lines, and to Record Data on Reported Spills, Blockages, and Lateral Line Cleaning Work

MBNMS staff will continue to encourage increased data recordation for infrastructure problems and improvements. MBNMS will facilitate and work with partners to coordinate local and regional efforts and methods with those developing Sewer System Management Plans and to encourage data and technology sharing between jurisdictions.

Activity 1.3: Encourage Local Jurisdictions to Map Problem Infrastructure Areas, Sensitive Habitats, Land Uses, Outfall Locations, and Critical Beaches

MBNMS staff will work with local jurisdictions to map infrastructure including sewer and storm drain information as well as the location, cause and receiving waters of sanitary sewer overflows. MBNMS will also work with researchers, SIMoN and others to characterize sensitive habitat or areas of high recreational use that could be impacted by sanitary sewer overflows.

Activity 1.4: Determine Proximity of Problems to Sensitive Areas and Heavily Used Beaches to Develop Priorities and Generate Funding

The information collected in Activity 1.3 will be compared against water quality data and areas of sensitive habitats and high recreational use in order to recruit resources, direct the implementation of management measures, and provide feedback on ongoing activities.

Strategy BC-2: Expand Pathogen and Contamination Research

Laboratory analysis of the three indicator organisms can take up to forty-eight hours during which beachgoers may be exposed to harmful pathogens. In addition, recent studies show that beach water quality can vary greatly on both a temporal and spatial scale. To address these problems, the Sanctuary will seek to assist, encourage, and monitor developments in rapid indicator assessment, explore other potential indicators or methods that detect the pathogens themselves, and perform upstream genetic source analysis studies.

Activity 2.1: Investigate and Implement Rapid Indicator Assessment

Current indicator analysis requires eighteen to twenty-four hour incubation times, and monitoring is geographically and temporally limited. Finding methods that can process samples in less time will reduce the risk to public health by ensuring that water quality is accurately evaluated and posted. The MBNMS will expand the Sanctuary Integrated Monitoring Network (SIMoN), and coordinate with research organizations with expertise in real-time monitoring such as the Monterey Bay Aquarium Research Institute (MBARI), the Southern California Coastal Water Research Project (SCCWRP), and the Sanctuary Integrated Monitoring Network (SIMoN). The purpose of these efforts will be to implement methods that will result in quicker turn around times between sample and results (e.g., biosensors, enzymatic assays, Polymerase Chain Reactivity [PCR]) and to investigate and adopt real-time, continuous monitoring techniques.

Activity 2.2: Explore Other Potential Indicators

An ideal indicator organism would be found only when disease-causing agents were present at densities that could cause human health problems. Recognizing that current fecal indicators fall short of this goal, and are neither the most precise nor easily assayed, evaluate alternate indicators such as fecal sterols, caffeine, and long-chain alkylbenzenes (LABs – synthetic surfactant).

Activity 2.3: Explore the Potential to Analyze for Specific Pathogens

The MBNMS will coordinate with partners to facilitate research for techniques that allow for the direct measurement of agents suspected of affecting human and marine health. Indicator organisms do not directly correspond to human health problems, and only indicate the potential presence of pathogens from untreated or partially treated sewage or contaminated runoff. Alternatively, waterborne pathogens are difficult to detect and quantify, and specific methodology to detect them in samples is only in the development stages.

Activity 2.4: Conduct Genetic Studies at Key Locations to Distinguish Bacteriological Sources

Information on the human or animal origin of fecal pollution gives an indication of the types of pathogens that may be expected, the risk of infection, and the treatment that may be required to control the transmission of disease. MBNMS will coordinate with agencies and scientists on appropriate techniques to distinguish between anthropogenic and animal sources of contamination, which will help to better assess health risks and allocate resources.

Strategy BC-3: Increase Monitoring Network

Resources and staffing among local, state, and federal agencies limit the frequency and number of beaches that can be monitored on a regular basis, which can potentially jeopardize public health. MBNMS staff will seek to develop scientifically justified monitoring protocols to ensure that contact with contaminated waters is reduced to the highest practicable extent. MBNMS will also coordinate and collaborate with existing monitoring programs, and utilize the best available indicators and analysis equipment developed through ongoing research.

Activity 3.1: Increase Number and Frequency of Beach Sampling

MBNMS will work with partners to expand monitoring to locations with reported incidences of illness or where physical features (e.g., proximity to runoff, enclosed waters) suggest high contamination levels.

Activity 3.2: Encourage Increased Upstream Monitoring by Local Agencies

The MBNMS will partner with local public works agencies, and when feasible, enlist volunteers to assist in increased upstream monitoring and assessment through collaboration with the Sanctuary Citizens Watershed Monitoring Network.

Activity 3.3: Incorporate Monitoring Network Data Into SIMoN

MBNMS will incorporate summarized water quality monitoring data, including contamination data, monitoring stations, and warning/closure data into SIMoN.

Figure BC.3 Water Quality Monitoring Stations in Northern MBNMS

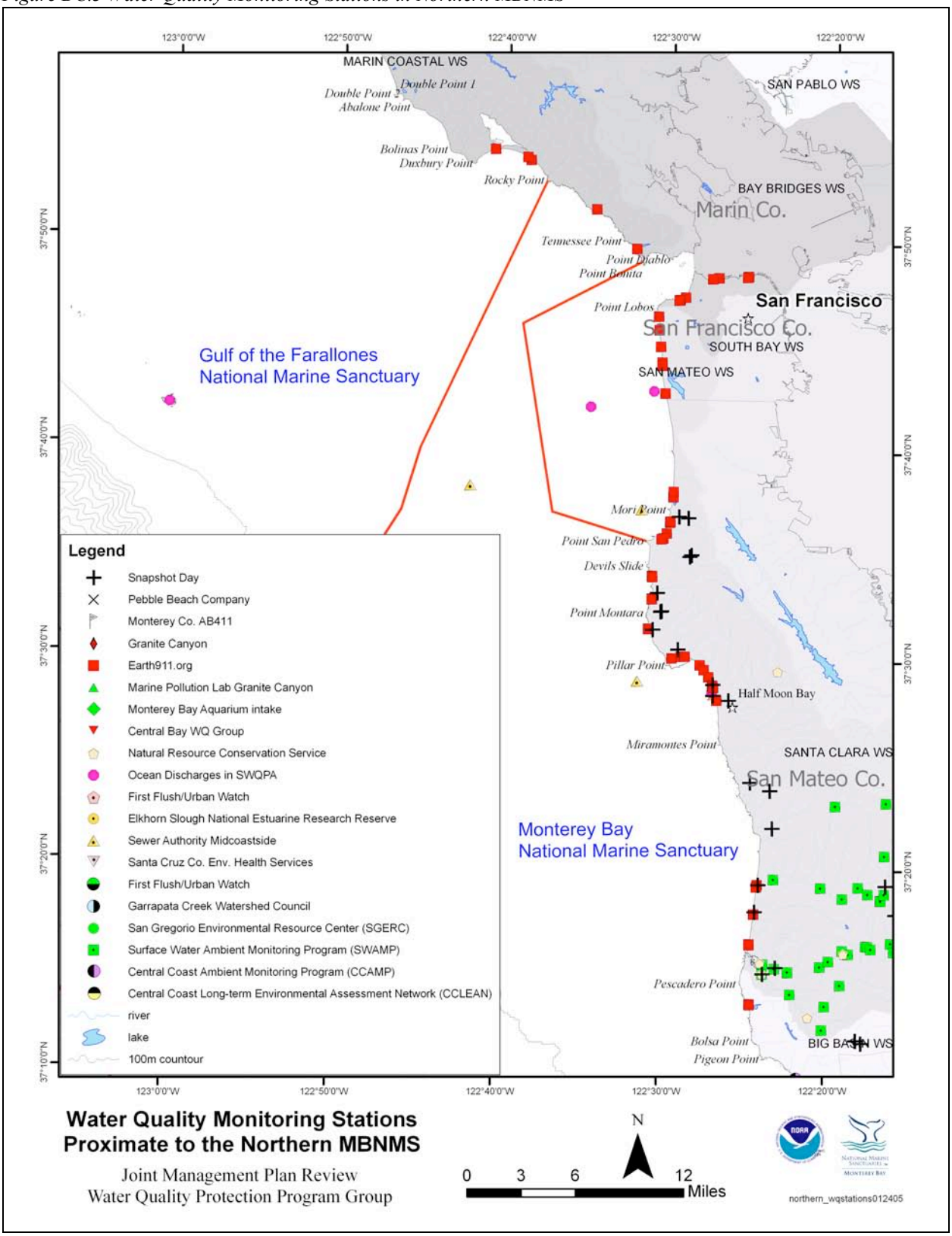


Figure BC.4 Water Quality Monitoring Stations in Central MBNMS

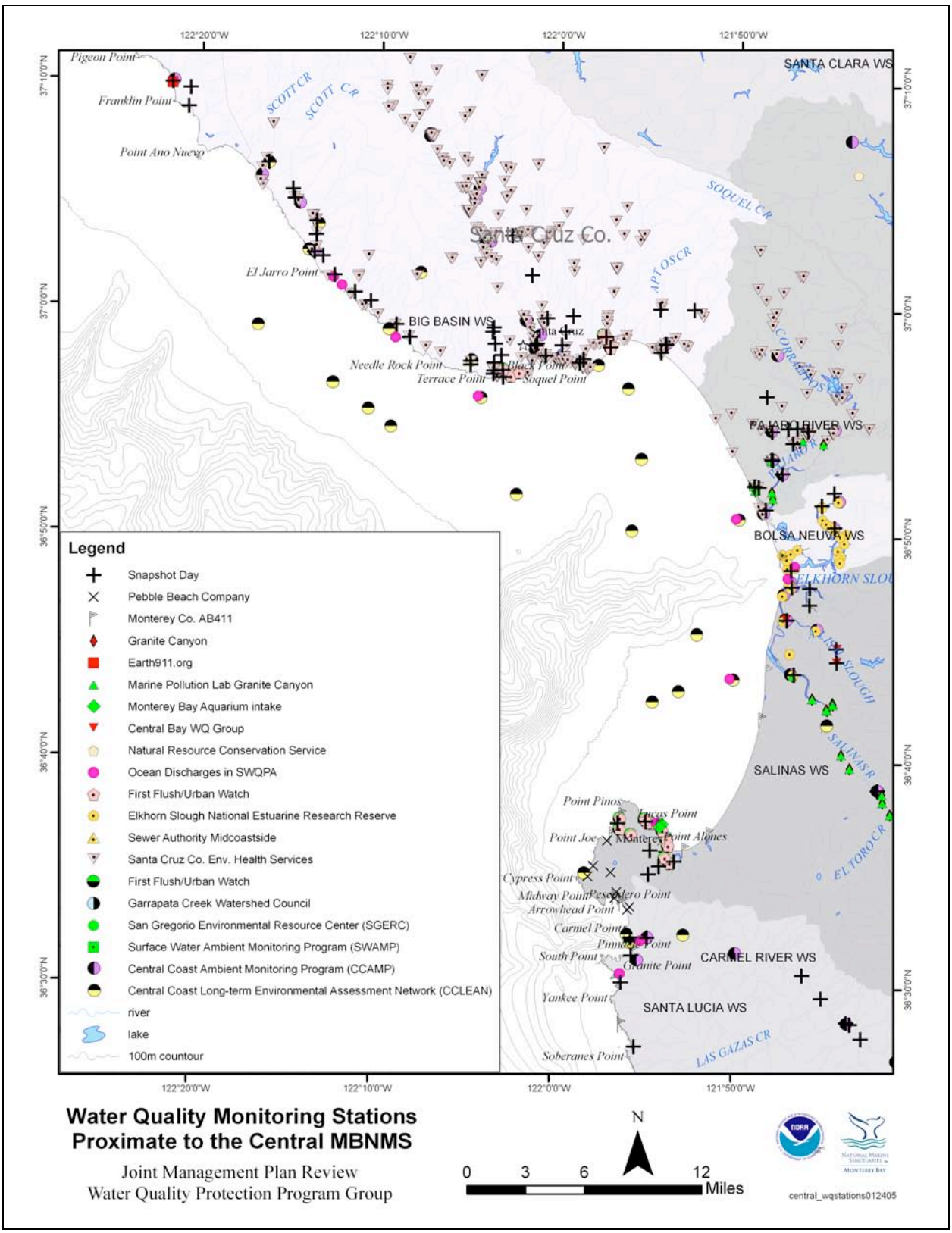
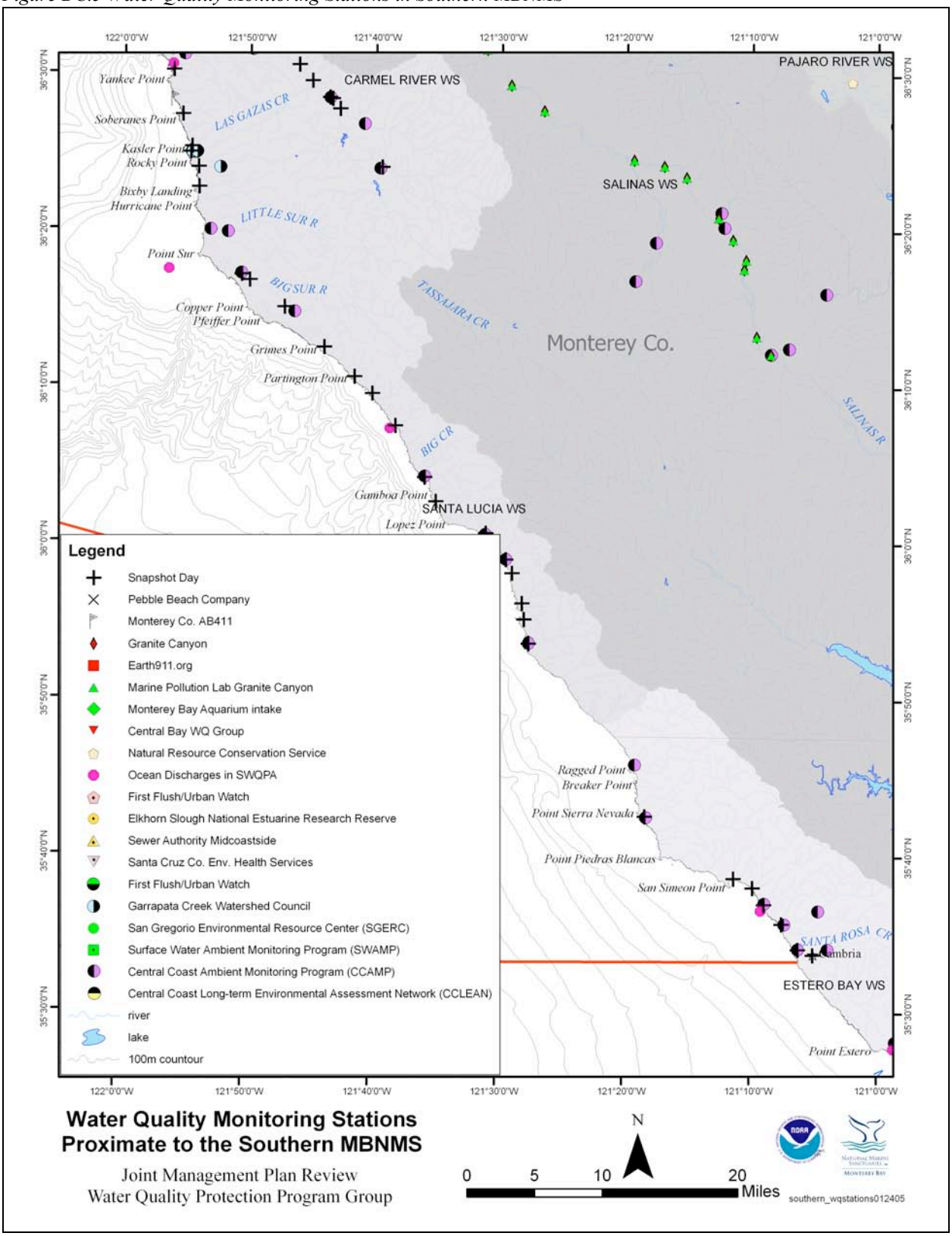


Figure BC.5 Water Quality Monitoring Stations in Southern MBNMS



Strategy BC-4: Enhance Notification Program

The MBNMS will seek to continue and expand upon existing notification systems in an effort to increase public access to water quality information before they depart for the beach.

Activity 4.1: Develop Improved Notification System for User Groups

The MBNMS will work with local agencies to ensure that user groups have the appropriate beach status information before departing for the beach and, if beaches are closed or warnings posted, provide the expected date of "open" status. Each beach closure or warning notification should indicate the cause of the closure or warning. Enhancement opportunities and activities include:

- Continue and expand recorded phone messages
- Continue and expand county websites and links to MBNMS and regional websites
- Evaluate additional links/programs to improve access to information
- Ensure that groups are aware of notification resources through public relations announcements
- Support and Enhance Surfrider Foundation's fax notification system

Activity 4.2: Coordinate Notification Systems with Education and Outreach Efforts

Enhanced and rapid notification must be coordinated with education and outreach efforts to ensure that the public understands which beaches are closed and why the beach the closed. Increased public understanding of the cause of the spill, the effects of contamination, and which areas are closed will facilitate corrective action.

Strategy BC-5: Increase Source Control Program

Private and public sanitary sewer systems, septic systems, and urban runoff are a significant pathway of anthropogenic bacterial contamination.

Activity 5.1: Work with Local Jurisdictions to Enhance the Repair and Replacement of Sewer Mains

The MBNMS will coordinate with and encourage local agencies to prepare a regional database of main line repair and replacement projects drawing on those developed by local jurisdictions. The MBNMS will work to analyze this data in a GIS database and rank projects based on downstream closures and postings, proximity to sensitive resources, or high-use beaches. This information can then be used to identify the greatest needs for improvements and provide justification for resource expenditures.

Activity 5.2: Reduce Exfiltration and the Number of Sanitary System Overflows

The MBNMS will coordinate with entities developing Sewer System Management Plans required by Waste Discharge Requirements (WDR) to ensure adequate ongoing maintenance and promote community support through outreach and public awareness. The MBNMS will encourage partners to coordinate to:

A. Utilize GIS and monitoring to improve identification, tracking, management, and follow up of main line obstructions, particularly locations with repeated incidences.

B. Leverage resources and assist with the development of source control measures and public outreach and education focused on preventing sewer system overflows resulting from the introduction of fats, grease, and other materials that cause blockages. Expand these programs to a regional level.
C. Ensure proper installation, testing, and inspection of sewers.
D. Develop a local or regional approved vendor list, franchise, or program similar to the clean business certification program for grease haulers and line clearing vendors.
E. Investigate alternative main line cleaning technologies.
F. Assist local jurisdictions in funding line clearing and pump station maintenance/repair activities, and utilize the Sanctuary to develop public support for these activities.
G. Encourage jurisdictions to require reporting of interceptor/trap cleaning and lateral cleaning.
H. Conduct technical training/public education and outreach.
I. Address illicit connections, and continue and expand the detection program under Phase 2 efforts.

Activity 5.3: Work with Local Jurisdictions to Reduce the Number of System Upsets Caused by Private Laterals

The MBNMS will coordinate with partners to create mechanisms that identify and correct chronic problem areas. Public agencies cannot implement lateral maintenance because of the disruption that would occur on private property during rehabilitation, costs involved, and potential liability issues. Homeowners, for their part, are also reluctant to undertake repairs, as costs are typically $3,000 or more. This strategy encourages cities to implement a method that will reduce the number of overflows from laterals.

A. *Three-Strikes Ordinance*
If city crews are called to a site three times in a one-year period, encourage local jurisdictions to issue a cease and desist order to the homeowner to repair the problem within ten days. If the problem is classified as a nuisance, city crews can fix it immediately.
B. *Sale/Transfer Inspection Program*
Work with local jurisdictions to develop an ordinance that requires the inspection of laterals prior to the sale or transfer of a property, which will require maintenance or repair of defective or damaged laterals.
C. Develop an "approved" vendor list for the Sanctuary cities and counties, modeled after existing program such as the clean business program.
D. Develop a voluntary lateral inspection and repair program.

Activity 5.4: Work with Local Jurisdictions to Reduce Input from Septic Systems

The MBNMS will encourage jurisdictions to develop a GIS layer of houses on septic systems and correlate this to problem areas based on data from citizens, city, county, and monitoring efforts. The MBNMS can then work with partners to:

A. Target areas suspected of impacting water quality with educational materials.
B. Inform citizens on proper use and maintenance.

C. Ensure that pumpers are reporting system maintenance and require pumpers to submit logs.
D. Encourage local jurisdictions to implement sale/transfer inspection program.
E. Encourage local jurisdictions to utilize a clean business–type program for pumpers.
F. Hold pumpers strictly accountable for improper disposal.

Activity 5.5: Work with Local Jurisdictions to Reduce Microbial Contamination from Urban Runoff/ Storm Drains

The MBNMS will work to coordinate efforts to prepare regional educational, outreach and technical materials that address the issue of beach closures and investigate cost effective measures to treat or divert urban runoff where source control measures prove ineffective. The MBNMS will also coordinate with partners and local jurisdictions to:

A. Increase the number of RV pump-out stations and provide incentives for their use
B. Remove sediments in catch basins and other areas prior to the first rains of the season
C. Develop a mechanism to address waste from homeless camps
D. Pet Droppings – Utilize existing materials and, as necessary, develop new methods, materials, or devices that will ensure that people clean up after their pets

Strategy BC-6: Increase Technical Training for Industry Professionals

There is a need to raise the level of awareness of professionals in the plumbing, sewer, and restaurant industry as to their potential impact on water quality via the sewer system.

Activity 6.1: Coordinate with Local Jurisdictions to Educate Plumbers, Grease Trap, and Sewer Industry on Proper Cleaning Techniques and Promote Reporting Program

The MBNMS will coordinate with local jurisdictions to raise the level of awareness of each of these industries to their impacts on the overall system and train restaurant personnel in the proper use and maintenance of grease equipment. The MBNMS should work with its partners to let plumbers know that line cleaning can move clogs into city mains, train restaurant personnel in the proper use and maintenance of grease equipment, and promote an interagency reporting program that will alert city staff to potential problems, e.g., problem laterals, behavioral problems, septic system malfunctions, improper grease disposal.

Activity 6.2: Working through Local Jurisdictions, Utilize Existing, or Adapt New Outreach/Training Modules for Targeted Public Servants

Activity 6.3: Develop Spill Response Training Module (See Emergency Response Strategy)

Strategy BC-7: Enhance Public Outreach of Contamination Sources and Solutions

MBNMS will work with partners to develop a comprehensive educational program that increases the public's understanding of the issue, the sources of contamination, and the solutions. Because funding is critical to source control, the education strategy will also seek to develop support for local funding initiatives.

Activity 7.1: Enhance Public's Understanding of the Importance of Reducing Microbial Contamination, the Sources of Contamination

The MBNMS will work with local agencies, the Regional Water Quality Control Board (RWQCB), and other partners to increase the public's understanding of beach closures. This includes coordination with the enhanced notification system, so that the public has a real-time understanding of the health of the beaches as well as increasing awareness of the causes of a beach closure when it occurs, the cause of the closure and warning, and work to identify and implement the solution.

Activity 7.2: Develop Coordinated Regional Outreach Program Building and Expanding on Existing Materials and Efforts

The MBNMS will coordinate with regional Phase II efforts, existing MBNMS outreach material, including Multicultural Education for Resource Issues Threatening Oceans (MERITO), to ensure consistent messages, facilitate collaboration with various groups, and leverage resources regarding contamination sources and solutions such as proper septic tank maintenance, pet care, and grease disposal.

Activity 7.3: Produce "Beach Closures and Microbial Contamination" Action Plan Document

MBNMS will produce a separate action plan document similar to the other four action plans that constitute the WQPP.

Strategy BC-8: Increase and Coordinate Enforcement

The MBNMS will seek to collaborate and leverage resources with the RWQCBs to ensure efficient enforcement of sewage spills in line with the authorities and protocols established in the Portor-Cologne Water Quality Act, the State Water Resources Control Board's (SWRCB's) enforcement policy, and Sanctuary regulations and enforcement policy.

Activity 8.1: Review Past Oversight and Sanctuary Notification of Spills, and Use this Information to Develop Effective Protocol for Collaboration Between Agencies

The MBNMS will work with partners to review past enforcement efforts by the RWQCBs and National Oceanic and Atmospheric Administration) (NOAA) to identify gaps, inconsistencies and opportunities for collaboration. The MBNMS and RWQCBs will develop a system to track spills and communicate on enforcement actions.

Activity 8.2: Coordinate and Strengthen Enforcement Actions with the RWQCBs

Develop adequate means to investigate and pursue necessary enforcement actions and leverage limited enforcement resources through interagency coordination. The MBNMS will develop a suite of legal response options for addressing violations.

Strategy BC-9: Improve Emergency Response Program

The MBNMS, in collaboration with local agencies and the RWQCB, will seek to track spills and ensure that a rapid, 24-hour-a-day spill response is available and that proper containment, disinfection and source control policies are developed and implemented.

Activity 9.1: Improve Reporting and Tracking of Spills

The MBNMS will work with partners to develop a single telephone number that, when called by local governments or sewage districts, business, or the public, will alert all appropriate agencies, including the Sanctuary, to the presence of a spill to ensure rapid containment response. This activity must include a system to adequately log spills and track follow-up actions.

Activity 9.2: Encourage Local Governments to Develop Cross-Departmental, On-Call Systems, that Will Ensure Rapid, 24-Hour-a-Day Spill Response

Activity 9.3: Encourage Local Governments to Develop Model Spill Response Program that Ensures Proper Techniques for Containment and Source Control

Activity 9.4: Provide Sanctuary Enforcement Presence in the Field to address Reported Spills and Assess Injury

Action Plan Partners: Public Works agencies, Coastal Conservancy, Central Coast Joint Data Committee, Southern California Coastal Watershed Research Project, State Water Resources Control Board's Beach Water Quality Workgroup, Counties, Monterey Bay Aquarium Research Institute, Moss Landing Marine Labs, universities, Sanctuary Integrated Monitoring Network (SIMoN), private sector research laboratories/firms, Water Environmental Research Foundation, UC Davis, County's Department of Environmental Health, Central Coast Long-term Environmental Assessment Network, Sanctuary Citizens Watershed Monitoring Network, State and County parks, TV and radio news media, Coastal Commission, Surfrider Foundation, regional dive and surf shops, individual haulers, Monterey Regional Water Pollution Control Agency, Local public works agencies, Regional Water Quality Control Boards, Environmental Protection Agency.

Table BC.1: Measuring Performance of the Beach Closures and Microbial Contamination Action Plan

Desired Outcome(s) For This Action Plan**:**	
Reduce beach closures and postings by reducing anthropogenic microbial contamination in MBNMS waters.	
Performance Measures	**Explanation**
By 2010, eliminate beach closures and reduce the number of beach warnings by 50% due to anthropogenic microbial contamination in the MBNMS.	Beach closures and warnings due to microbial contamination are tracked through postings of the County Environmental Health Departments. Measuring the number of beach closures and warnings in the MBNMS can be calculated by aggregating the monthly or seasonal reports from the county health department's various reporting mechanisms. These will be reported annually. This performance measure relies on the success of partners yet reflects the importance of not having any beach closures in the MBNMS.

Table BC.2: Estimated Timelines for the Beach Closures and Microbial Contamination Action Plan

Beach Closures and Contamination Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy BC-1: Enhance Use of Geographic Information System (GIS)					
Strategy BC-2: Expand Pathogen and Contamination Research					
Strategy BC-3: Increase Monitoring Network					
Strategy BC-4: Enhance Notification Program					
Strategy BC-5: Increase Source Control Program					
Strategy BC-6: Increase Technical Training for Industry Professionals					
Strategy BC-7: Enhance Public Outreach of Contamination Sources and Solutions					
Strategy BC-8: Increase and Coordinate Enforcement					
Strategy BC-9: Improve Emergency Response Program					

Legend	
Year Beginning/Ending : ●——●	Major Level of Implementation: ———
Ongoing Strategy : ●——▶	Minor Level of Implementation: .....

Table BC.3: Estimated Costs for the Beach Closures and Microbial Contamination Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy BC-1: Enhance Use of Geographic Information System (GIS)	$124	$32	$24	$20	$20
Strategy BC-2: Expand Pathogen and Contamination Research	$524	$24	$24	$0	$24
Strategy BC-3: Increase Monitoring Network	$191	$191	$569	$219	$219
Strategy BC-4: Enhance Notification Program	$29	$22.5	$12	$48	$48
Strategy BC-5: Increase Source Control Program	$211	$211	$211	$211	$211
Strategy BC-6: Increase Technical Training for Industry Professionals	$51	$76	$76	$76	$76
Strategy BC-7: Enhance Public Outreach of Contamination Sources and Solutions	$70	$60	$60	$50	$50
Strategy BC-8: Increase and Coordinate Enforcement	$28	$24	$24	$24	$24
Strategy BC-9: Improve Emergency Response Program	$28	$28	$20	$12	$12
Total Estimated Annual Cost	*$1,256*	*$668.5*	*$1,020*	*$660*	*$684*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Cruise Ship Discharges Action Plan

Goal

Prevent impacts to Monterey Bay National Marine Sanctuary (MBNMS) resources from cruise ship discharges.

Figure CS-1: E/V Sharkcat and M/V Crystal Harmony

Introduction

Worldwide, cruise ships constitute a large and rapidly growing industry. Although partly constrained by the lack of local docking facilities, cruise ship visits to Monterey are likely to continue to grow as the fleet is shifting from international to more domestic cruises, and due to a new cruise ship docking facility planned for San Francisco Bay. Due to their sheer size, capacity for passengers and crew (between 1,000 and 5,000 people), and environmental practices, cruise ships can cause serious impacts to the marine environment. The main pollutants generated by a cruise ship are: sewage, also referred to as black water; gray water; oily bilge water; hazardous wastes; and solid wastes. Cruise ship discharges include such harmful matter as sewage, gray water, bilge water, ballast water, solid waste and other hazardous materials.

A. Sewage includes vessel sewage and wastewater from medical facilities. Sewage from ships is generally more concentrated than that from land based sources, as it is diluted with less water when flushed (three quarts versus three to five gallons). Sewage discharge can contain bacteria or viruses that cause disease in humans and other wildlife. It can present a public health concern, if discharged in the vicinity of marine life harvested for human consumption, or in or near waters used for recreational activities such as swimming, diving, or boating. Volumes of sewage for a typical cruise ship have been estimated at between five to ten gallons per person per day, or up to 280,000 gallons per week.
B. Gray water consists of wastewater from sinks, showers, laundry, and galleys. It can contain a number of pollutants including: suspended solids, oil, grease, ammonia, nitrogen, phosphates, copper, lead, mercury, nickel, silver and zinc, detergents, cleaners, oil and grease, metals, and pesticides. A typical cruise ship produces an estimated 1,000,000 gallons of gray water per week.
C. Bilge water consists of fuel, oil, and wastewater from engines and machinery that collects, along with fresh water and seawater in the area at the bottom of the ship's hull, because of spills, leaks, and routine operations. It may also contain other materials such as rags, cleaning agents, paint, and metal shavings.
D. Hazardous wastes produced on cruise ships include by-products of dry cleaning and photo processing operations, paints and solvents, batteries, fluorescent light bulbs containing mercury, and wastes from print shops. A typical ship produces an estimated

110 gallons of photo processing chemicals, five gallons of dry-cleaning wastes, and ten gallons of used paints per week. These substances can be toxic or carcinogenic to marine life.

E. Solid wastes generated by cruise ships include large volumes of food waste, cans, glass, wood, cardboard, paper, and plastic. Plastic debris can be ingested or cause entanglement to marine life including marine mammals, seabirds, and sea turtles. In some cases the wastes are incinerated on the vessel and the ash is discharged at sea; other wastes are disposed of on shore or recycled. A typical cruise ship generates eight tons of solid waste per week.
F. Cruise ships take in millions of gallons of ballast water, in order to stabilize the vessel for safe and efficient operation. During the process, they take in thousands of species of marine organisms, including various types of larvae, fish eggs, and microorganisms. The water is often drawn in from coastal waters in one area, and discharged at another location. This process has led to the introduction of invasive species, which disrupt marine ecosystems and cost the U.S. billions of dollars per year.

Within the Sanctuary, three cruise lines that visited in 2002 voluntarily adopted a no discharge policy within the Sanctuary, following numerous conversations and meetings with Sanctuary staff, state and local government officials and environmental organizations. While the Sanctuary welcomed these voluntary agreements, one of the cruise lines subsequently broke the agreement by discharging within Sanctuary boundaries upon its departure from Monterey. Critics argue that these voluntary industry initiatives are self-regulated, not taken seriously by cruise ship operators, and are unenforceable.

Proposed New Regulation: MBNMS is proposing a prohibition on discharging or depositing, from within or into the Sanctuary, any material or other matter from a cruise ship except vessel engine cooling water, vessel generator cooling water or anchor wash.

Proposed New Definition: MBNMS proposes to define a *Cruise ship* as a vessel with 250 or more passenger berths for hire.

Strategy CS-1: Increase Outreach and Coordination

MBNMS staff will develop a system to ensure that cruise line industry representatives, cruise ship operators and crew, regulatory agencies, and other relevant parties are cognizant of the Sanctuary's existing and revised policies, if adopted, regarding cruise ship discharges. Staff will also conduct outreach, aimed at educating cruise ship operators and crew about the MBNMS and its resources, potential impacts from vessel operations, and measures that can be taken to minimize these impacts.

Activity 1.1: Develop and Implement an Outreach Plan About the Sanctuary's Regulation to Address Cruise Line Industry, Regulatory Agencies, and General Public

MBNMS will develop an outreach plan for the public as well as the cruise ship industry to increase understanding and awareness of MBNMS regulations. The Cruise Ship Outreach Plan

should address proper stewardship guidelines and use of best management practices (BMPs). MBNMS will also extend its current education and outreach efforts to the Cruise Line Industry.

Activity 1.2: Develop Protocols for MBNMS Communication with Cruise Line Companies

MBNMS will develop a checklist of items to discuss with cruise ship companies to include discharges, anchoring guidelines, adherence to vessel traffic lanes, and sanctuary boundaries. MBNMS will also develop a contact list for cruise line industry representatives and regulatory agencies while ensuring communication of information to cruise lines, ship operators, and all levels of crew.

Activity 1.3: Partner with Cruise Line Industry to Develop MBNMS Outreach Materials and Opportunities

MBNMS will work with the cruise line industry in the production and distribution of customized materials, in both print and video, and develop an onboard presentation about the MBNMS and its resources.

Activity 1.4: Collaborate with Sightseeing Tour Operators to Incorporate Sanctuary Information and Messages to Shore Based Tourists

Strategy CS-2: Develop Enforcement and Monitoring Program

MBNMS staff, in collaboration with partners, will develop and implement enforcement and monitoring programs, and protocols for reporting by cruise ships.

Activity 2.1: Develop and Implement a Tracking Plan for a Cruise Ship Visitation in MBNMS

Activity 2.2: Develop Standard Requirements and Protocols for Reporting

MBNMS will develop a list of emergency contacts for reporting in the event of a discharge. Standard reporting requirements will include standard documents for all cruise ships visiting MBNMS (vessel logs, printouts from holding tanks, etc.).

Activity 2.3: Develop and Implement an Enforcement Program

MBNMS will work with enforcement partners to evaluate and establish effective enforcement practices to ensure compliance. MBNMS and partners should provide sufficient enforcement resources to investigate potential violations and develop collaborative inspection programs with the United States Coast Guard (USCG) to inspect onboard discharge records and ship's systems for compliance. MBNMS will investigate monitoring feasibility and develop and implement monitoring protocols. MBNMS will also identify partners and potential funding sources for monitoring, including industry fees.

Action Plan Partners: State Water Resources Control Board, Regional Water Quality Control Board, State Lands Commission, United States Coast Guard, Ocean Conservancy, City of Monterey, cruise ship industry, City of Monterey, tourism industry, environmental organizations.

Table CS.1: Measuring Performance of the Cruise Ship Discharges Action Plan

Desired Outcome(s) For This Action Plan:	
Prevent impacts to MBNMS resources from cruise ship discharges through enforcement of regulations and outreach to the cruise ship industries.	
Performance Measures	**Explanation**
No discharges from cruise ships in the MBNMS.	The MBNMS prohibits discharges (with some exceptions for engine cooling water, generator cooling water, and anchor wash) from cruise ships. Performance in implementation of this plan can be evaluated by reviewing the discharge logs and reports submitted by the cruise ships to determine if any discharges have occurred. This will be supplemented by occasional interagency shipboard inspections.

Table CS.2: Estimated Timelines for the Cruise Ship Discharges Action Plan

Cruise Ship Discharges Action Plan	**YR 1**	**YR 2**	**YR 3**	**YR 4**	**YR 5**
Strategy CS-1: Increase Outreach and Coordination	●———	●·····	·····	·····	·····▶
Strategy CS-2: Develop Enforcement and Monitoring Program	●———	●·····	·····	·····	·····▶

Legend	
Year Beginning/Ending : ●——●	Major Level of Implementation: ———
Ongoing Strategy : ●——▶	Minor Level of Implementation: ·····

Table CS.3: Estimated Costs for the Cruise Ship Discharges Action Plan

Strategy	**Estimated Annual Cost (in thousands)***				
	YR 1	**YR 2**	**YR 3**	**YR 4**	**YR 5**
Strategy CS-1: Outreach and Coordination	$23.5	$21	$11.5	$9	$9
Strategy CS-2: Enforcement and Monitoring Program	$160	$82	$53	$42.5	$42.5
Total Estimated Annual Cost	*$183.5*	*$103*	*$64.5*	*$51.5*	*$51.5*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Water Quality Protection Program Implementation Action Plan

Goal

Reduce contamination from nonpoint source pollution in Monterey Bay National Marine Sanctuary (MBNMS) and its watersheds.

Introduction

The Sanctuary is adjacent to nearly 300 miles of California's Coastline and receives runoff from eleven major watershed areas. The 7,000 square miles of land uses in the adjacent watersheds range from forest and grazing lands to heavily agricultural and urbanized areas. As rainfall or irrigation water passes over the different land uses within the watershed, it can pick up a variety of pollutants, which find their way into streams, rivers, wetlands, harbors, and eventually into the Sanctuary. Offshore areas of the Sanctuary are in relatively good condition, but nearshore coastal areas, harbors, lagoons, estuaries and tributaries show a number of problems, including elevated levels of nitrates, sediments, persistent pesticides, metals, bacteria, pathogens, detergents, and oils. These contaminants can have a variety of biological impacts including bioaccumulation, reduced recruitment of anadromous species, algal blooms, mortality due to toxicity, transfer of pathogens, and interference with recreational uses of the Sanctuary.

During the designation of the Sanctuary in 1992, eight key water quality agencies within the Sanctuary region entered into a Memorandum of Agreement (MOA). This MOA provided an ecosystem-based water quality management process that integrates the mandates and expertise of existing coastal and ocean resource managers and protects the nationally significant resources, qualities and compatible uses of the Sanctuary. The agreement led to the development of the Sanctuary's Water Quality Protection Program (WQPP). Today, the WQPP is a partnership of twenty-five federal, state and local agencies, public and private groups dedicated to protecting and enhancing water quality in the Sanctuary and its watersheds.

This partnership of MOA signatories, additional public agencies, non-governmental and private organizations are working as members of the WQPP Committee. This committee oversaw the development of four action plans entitled Implementing Solutions to Urban Runoff; Regional Monitoring, Data Access, and Interagency Coordination; Marinas and Boating; and Agriculture and Rural Lands. Many committee members have been partners in initial implementation efforts along with a wide variety of stakeholders in the community including federal, state, and local agencies, businesses, landowners, environmental groups, and the public.

Program Updates

Rather than addressing new topics, this action plan incorporates recommendations of the existing WQPP plans that have been created since the Sanctuary was designated, and recommends ongoing or additional steps for implementation. Existing WQPP plans include:

- Implementing Solutions to Urban Runoff
- Regional Monitoring, Data Access, and Interagency Coordination

- Marinas and Boating
- Agriculture and Rural Lands

These original action plans are organized in a format similar to the other Joint Management Plan Review (JMPR) action plans, i.e., by strategy and steps (here called activities), with each activity containing multiple components. Despite limitations on funding dedicated to implementation and staff vacancies during recent years, there has been substantial implementation of a number of strategies, as well as many strategies only partially implemented. In many of these cases of partial implementation, implementation has occurred in some geographic areas or at some times, but has not been widespread or regular throughout the region. A few of the strategies have already been completed or are fully implemented and ongoing, and a few strategies have not been initiated at all.

The program has been successful in leveraging the plans into funding from outside sources, often through grant proposals, and in the case of the Agriculture and Rural Lands plan, through a Congressional allocation from the United States Department of Agriculture (USDA) budget to one of our key partner agencies. Although this outside funding has been essential for program implementation, a disadvantage of this approach has been that it is time consuming to pursue, obtain and administer such outside funding. Grants are generally limited in scope and duration and so can lead to a rather fragmented approach.

A general overview of the number of strategies and activities and the level of implementation is provided in the table below.

Water Quality Protection Program: Action Plan Implementation (as of 2004)

Action Plan	Number of Strategies in Full WQPP Plans	Total Number of Activities in Full WQPP Plans	Number of Strategies Implemented			
			Completed or Ongoing	Substantially Implemented	Partially Implemented	Not Initiated
I. Implementing Solutions to Urban Runoff	7	37	0	3	4	0
II. Regional Monitoring, Data Access, and Interagency Coordination	3	25	0	2	1	0
III. Marinas and Boating	7	50	1	1	2	3
IV. Agriculture and Rural Lands	24	90	1	3	14	6
Total WQPP	**41**	**202**	**2**	**9**	**21**	**9**

The WQPP Committee used the JMPR process to review the WQPP and its individual action plans, to determine what has been implemented, what the barriers to full implementation have been, and what should be priorities as the program moves forward. Following below are each of the four existing action plans broken down into their component strategies. The implementation of the steps in the original plans is briefly summarized here in the table and text under each

strategy. The strategies and activities described here are short summaries of the detailed recommendations in the four original WQPP action plans that total 250 pages.

ACTION PLAN I: IMPLEMENTING SOLUTIONS TO URBAN RUNOFF

Urban runoff is a significant problem in the Sanctuary's watersheds that can be addressed by a coordinated regional approach towards education, training, and management. The pollutants of concern associated with urban runoff include petroleum hydrocarbons, metals, sediments, detergents, nutrients, pesticides, and organics. The Water Quality Protection Plan (WQPP) Urban Runoff Plan was developed in 1996 in collaboration with the WQPP committee, many of the region's public works representatives and other stakeholders. It describes seven priority strategies for addressing the problems associated with urban runoff in the region.

Strategy WQPP-1: Increase Public Education and Outreach

The objective of this strategy in the original plan was to review existing educational programs and materials, and to build a framework that would develop a comprehensive regional education and outreach program focused on urban runoff, water quality, and watershed issues. This was to be accomplished by coordinating and building on education efforts that address the causes of urban runoff problems, its effects on habitats and resources, and promotion of measures that reduce pollutants in runoff.

Implementation of WQPP Steps as of 2004

Steps	***Implementation Status***
Review Existing Programs and Materials to Identify Best Tools	Initial review completed, needs update
Establish a Framework for the Program	Substantial implementation, but intermittent
Develop Supporting Materials	Substantial implementation
Establish Methods for Distributing Information	Partial implementation

The MBNMS developed an initial framework that identified specific target audiences, prioritized geographic areas, and identified the tools, distribution methods, and existing outreach programs to incorporate into the program. Numerous high quality educational materials and programs have been developed or modified to implement this strategy. Many of these materials are available in bilingual formats. They include:

A. "Dirty Word" TM radio spots – focus on urban runoff, targeting the public
B. "Dirty Word" TM Public Service Announcements (PSA's) for television – focus on urban runoff targeting general public
C. "Storm Drains to Sanctuaries" – PSA for television
D. Bus ad/movie slide – addressing storm drains
E. Roving watershed and storm drain models
F. Storm drain poster
G. Monterey Bay Begins on Your Street brochure
H. *Urban Watch* program brochure
I. *Be Kind to Animals* – Coloring book for children
J. WQPP Brochure
K. A Citizen's Guide to Clean Water

Written materials have been distributed through a variety of venues, including businesses, schools, at public events, and teacher training workshops. Radio ad campaigns have provided multiple exposures in past years, but now lack funding for ongoing presentations. Outreach programs have included a door-to-door campaign in the City of Watsonville, incorporation of water quality lessons into teacher training workshops, and hands-on models, which are used to demonstrate polluted runoff at public events. Outreach has also included water quality presentations to local and state governments, and to various conferences, workshops and classes. Although radio and TV reaches audiences throughout the region, much of the focus of the other types of outreach has been in a few key cities that have been initial partners in the effort, including Monterey, Pacific Grove, and Watsonville.

Although much has been implemented under this strategy, there has not been a consistent program over time or across the cities in the region due to the variable grant-funded nature of activities and staff turnover. Stable implementation of the framework is needed for an educational program that continuously evaluates and expands outreach and addresses the many geographic areas and populations that have not been a focus of the program to date.

Activity 1.1: Update and Reprint Existing Educational Materials

Activity 1.2: Broaden Distribution of Existing Outreach Materials and Programs

Develop outreach distribution mechanisms and programs that are more consistent over time and throughout the region, repeating outreach as needed in existing pilot areas and expanding to coastal cities and constituents not yet reached and inland cities like Salinas.

Activity 1.3: Develop a Stable Funding Source and Infrastructure with Partners to Facilitate Ongoing Distribution and Programs

This should include coordinating and pooling resources with cities required to develop education programs under their National Pollutant Discharge Elimination System (NPDES) Phase II permits.

Activity 1.4: Expand Outreach to the Hispanic Population in Coordination with Multicultural Education for Resource Issues Threatening Oceans (MERITO)

Strategy WQPP-2: Increase Technical Training

The main objective of this strategy in the original plan was to develop voluntary technical training material and programs for public works and planning staff, small businesses/trades, and construction companies on methods to prevent urban runoff pollution.

Implementation of WQPP Steps as of 2004

Steps	***Implementation Status***
Evaluate Existing Training Programs, Which Could Be Adopted or Modified	Completed, Needs Updating
Assemble Materials/Enlist Instructors	Completed, Needs Updating

Advertise/Conduct Training in Two Cities	Completed
Conduct Regional Training Program	Substantial Implementation
Evaluate Effectiveness of Training	Partial Implementation
Schedule Ongoing Series of Workshops	Partial Implementation
Establish a Technical Support Network	Not Initiated

Substantial implementation of the technical training strategy occurred in the initial years after plan completion, although activity has reduced in recent years. Implementation on a regional level included co-hosting of five training workshops for public works and planning staff focused on various technical elements of a Model Urban Runoff Program (see below). The Sanctuary also conducted technical training on-site with seven public works departments of individual municipalities via a contractor who addressed specific best management practices (BMPs) related to urban runoff and coliform contamination.

Training for the business community has been partly implemented through development and partial distribution of a variety of technical training materials, including:

A. Restaurant outreach survey to assess understanding of issue and current practices
B. Restaurant outreach training video on BMPs called "Make The Connection"
C. Restaurant "Best Management Practices" poster
D. Automotive "Best Management Practices" poster

These materials for businesses have been distributed primarily through outreach programs in the cities of Monterey and Pacific Grove, utilizing funding from the cities.

Similar to the education strategy, although substantial implementation has occurred, the trainings have not been consistent in time or covered sufficient geographic areas or target audiences. The training program should be an ongoing one due to staff turnover in target organizations, the need to remind and provide updates to ongoing staff, and to reach new audiences.

Activity 2.1: Update and Expand Training Materials

This should include reviewing past training materials for public works departments to summarize new management measures and regulations. Additional training modules should be included to address planning department staff, supervisors of construction and maintenance crews, businesses, and trades and agency personnel handling hazardous materials.

Activity 2.2: Continue Regional and On-site Urban Training Workshops

This should include contacting municipal and county department heads and trade associations to develop target audiences. The Sanctuary should also continue to perform on-site municipal training sessions and modules to reach those staff who are actually implementing the work and who generally are not reached by regional workshops.

Activity 2.3: Develop and Conduct Training Workshops with Developers

Local planning department staff are often overburdened and do not have the time to thoroughly review development plans for inclusion of stormwater/urban runoff controls. To assist them in

reducing water quality impacts, workshops and trainings should be conducted with the developers and project designers to raise their awareness of stormwater/urban runoff controls that can be included at the onset of the project, rather than relying solely on planners.

Strategy WQPP-3: Collaborate with Regional Urban Runoff Management Efforts

The objective of this strategy in the original plan was to initiate a collaborative effort among municipal, county, and Regional Water Quality Control Board (RWQCB) staff to develop and implement area-wide urban runoff management programs.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Develop a Model Municipal Program, Which Provides a Comprehensive Guide to Urban Runoff Management	Completed
Evaluate Existing Regional Urban Runoff Programs for Lessons Learned	Completed
Modify Stormwater Task Force Goals	Not Initiated
Select a Pilot Area For an Urban Runoff Program	Complete
Develop a Formal Program Structure For Regional Effort	Partial Implementation
Develop a Plan For Area-Wide Program	Partial Implementation
Implement the Pilot Program	Completed
Modify Program and Implement in Other Areas	Partial Implementation

Initial implementation of this strategy involved the development of a Model Urban Runoff Program (MURP), in collaboration with the cities of Monterey and Santa Cruz, the Sanctuary, California Coastal Commission (CCC) and the RWQCB. The MURP is a comprehensive guidebook that includes model ordinance revisions, municipal BMPs, illicit discharge detection programs, and recommendations for organizing, funding and monitoring the program. In addition to development of the guidebook, initial implementation of MURP was accomplished in Monterey, Santa Cruz and the City of Watsonville via grant funding. The guidebook has been distributed to all local jurisdictions and numerous trainings have been conducted. Several additional cities have begun adopting the recommendations.

A second key element of this strategy, the development of a formal regional approach to urban runoff, has been partly initiated by local jurisdictions. In Monterey County, the Monterey Regional Water Pollution Control Agency (MRWPCA) is serving as a regional coordinator and permit holder for a coalition of municipalities on the Monterey Peninsula to address urban runoff under NPDES Phase II regulations. A regional approach is also being considered in Santa Cruz County but has not yet been formalized.

The strategies contained in the MURP are directly transferable to jurisdictions developing their stormwater management programs required under their new Phase II permits. Given the fiscal situation of many jurisdictions, there will be a need to reduce development costs and to utilize existing programs and materials. In addition, there is an ongoing need to encourage coordination among jurisdictions to develop regional programs in additional areas.

Activity 3.1: Coordinate with Individual Jurisdictions to Implement Local Stormwater Programs

The Sanctuary should coordinate with individual local jurisdictions in the development and implementation of their stormwater management programs to provide materials developed under the MURP, and assist in implementation of the technical training, monitoring and educational elements of addressing urban runoff management.

Activity 3.2: Facilitate the Development of Regional Stormwater Programs

The Sanctuary should coordinate with additional jurisdictions to encourage their development of coordinated regional approaches to stormwater and pooling of their resources to address urban runoff issues. This should include encouraging the development of multijurisdictional NPDES permit programs such as those developed for the Monterey Peninsula. The Sanctuary should also continue to collaborate with the Stormwater Task Force as a platform for information sharing and coordination of Phase II NPDES programs around Monterey Bay, and with other entities such as the MRWPCA in their regional stormwater programs.

Strategy WQPP-4: Promote Structural/Non-structural Controls

The objective of this strategy in the original plan was to develop demonstration projects and conduct briefings with municipalities, counties and special districts to promote the use of BMPs. Additional activities sought to initiate regional cooperation for prioritizing sites and adopting such practices.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Select Pilot Project/Solicit Participation	Completed
Plan, Implement, and Evaluate Pilot Project	Completed
Develop/Distribute BMP Guidelines	Not Initiated
Expand Implementation	Not Initiated

Direct Sanctuary involvement in implementation of this strategy has been limited to a pilot project and study conducted jointly with the City of Monterey to test the utility of oil and sediment/water separators for treating runoff from parking lots, which uncovered numerous technical challenges in the use of such devices. Identification of alternative types and locations for demonstration projects and briefings to local government has not been conducted. However, the CCC has initiated numerous structural control projects through its permits.

The use of BMPs should be promoted, including structural and nonstructural controls to improve water quality.

Activity 4.1: Promote Structural and Nonstructural Controls via Technical Training

Activity 4.2: Track and Comment on Major Local Projects and Plans to Encourage Inclusion of Structural and Nonstructural Controls

Activity 4.3: Compile and Report Results of Structural/Nonstructural Control Effectiveness

Compile information on previous structural/nonstructural implementation projects that highlight water quality results and identify limitations of the various technologies. Identify additional information or studies needed to better select and design structural/nonstructural BMPs for central coast development projects and initiate research/studies.

Activity 4.4: Pursue Additional Pilot Projects with Local Jurisdictions and Incorporate Monitoring to Establish Benefits

Strategy WQPP-5: Promote Sedimentation/Erosion Controls

The objective of this strategy in the original plan was to initiate a collaborative effort among cities, counties, special districts, and state agencies to develop and implement an erosion/sedimentation source control program for non-agricultural areas, including urban, suburban, and rural residential developments. The strategy sought to identify and evaluate erosion control measures and standards for effectiveness and consistency across counties and municipalities, develop proposed language revisions for "model" ordinances and programs, and implement programs in pilot areas.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Identify Measure and Standards	Partial Implementation
Develop Model Programs/Schedule Revisions	Not Initiated
Identify Pilot Area/Conduct Briefings	Not Initiated
Implement in Pilot Area/Evaluate Success	Not Initiated
Implement in Remaining Non-Agricultural Areas	Not Initiated

The CCC compiled an initial listing of standards found in existing ordinances from a number of counties and cities in the Sanctuary region, outlining minimal grading amounts that trigger permits, areas and types of grading where seasonal restrictions may apply, erosion control plan criteria, etc. The WQPP committee has not yet reviewed this data or developed related recommendations on standardization of ordinances or development of model programs and pilot projects.

A regional evaluation of erosion control standards should be conducted to identify and address gaps and inconsistencies.

Activity 5.1: Evaluate Erosion Control Measures and Standards in County and City Ordinances

Activity 5.2: Develop Recommendations for Revisions and Work with Local Jurisdictions to Implement

Strategy WQPP-6: Increase Storm Drain Inspection

The objective of this strategy in the original plan was to work with public works departments to develop a monitoring, mapping, and management system in coastal cities for critical storm drains and outfalls with a history of contaminated flows or that drain to critical habitat.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Prepare Monitoring System in Two Priority Cities	Substantial Implementation
Implement System in Two Priority Cities	Substantial Implementation
Conduct Training in Coastal Cities	Partial Implementation
Conduct Evaluation	Not Initiated
Implement Additional Systems	Partial Implementation

Monitoring of the storm drain system has been initiated in several cities via the Urban Watch Program and the First Flush programs coordinated by the Sanctuary Citizen Watershed Monitoring Network (SCWMN). These programs are collaborative efforts between the Sanctuary, the cities, Coastal Watershed Council (CWC), and trained volunteers to take samples at selected locations monthly during the dry season and during the first large rain event of the

year. These volunteer programs have been operating in Monterey, Pacific Grove, Capitola and Santa Cruz, and have successfully identified numerous sub-watersheds with high levels of coliform, metals or detergent contamination. Mapping and evaluation of the storm drain system was conducted under MURP grants with the cities of Monterey, Santa Cruz and Watsonville. Training on storm drain mapping and diagnostics, monitoring, and illicit discharge detection has been included in the MURP guidebook and in the regional urban runoff trainings.

Efforts to monitor, map, diagnose and manage storm drains should be continued and expanded in partnership with local jurisdictions.

Activity 6.1: Continue and Expand First Flush and Urban Watch Monitoring Programs

Monitoring efforts for storm drain contaminants should continue and be expanded to additional jurisdictions through the SCWMN's First Flush and Urban Watch programs. This should be coordinated closely with local jurisdictions to select appropriate sampling sites.

Activity 6.2: Conduct Follow-up with Public Works Departments

The Sanctuary should follow up with the city public works departments to evaluate the contaminant hot spots identified by these monitoring programs and encourage them to conduct follow up assessments or targeted source control efforts.

Activity 6.3: Expand Mapping, Diagnostic Capabilities and Illicit Discharge Programs

MBNMS should coordinate with local jurisdictions to promote expansion of their mapping and diagnostic capabilities and illicit discharge detection efforts, as part of their Phase 2 programs. Mapping, illicit detection, and monitoring should also be addressed in new technical training sessions.

Strategy WQPP-7: Produce and Promote CEQA Additions

The objective of this strategy in the original plan was to provide local planners and elected officials with additional analytical tools to assess and reduce the potential changes in the quantity and quality of urban runoff resulting from proposed new development. This tool was to involve the incorporation and use of several questions related to urban runoff in the California Environmental Quality Assessment (CEQA) checklist that local planning departments use to evaluate impacts and target appropriate mitigation recommendations. The checklist was to be accompanied by a training module that would highlight how to conduct the assessment and outline potential BMPs that could be recommended to reduce water quality impacts.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Produce and Distribute Training Packet for Local Planners to Accompany Checklist	Completed, Needs Update
Complete Pilot Project of CEQA Checklist Revisions in Monterey County	Completed
Identify and Initiate Project in Remaining Jurisdictions	Partial Implementation
Adoption of CEQA Changes	Partial Implementation
Evaluate Effectiveness of Changes	Not Initiated

A revised CEQA checklist was developed in collaboration with the Monterey County Planning Department, along with a guidebook to assist in training local planners to more thoroughly consider water quality issues related to new developments. The revised CEQA checklist was distributed to all the cities and counties in the Sanctuary region. The checklist was adopted by Monterey County and Santa Cruz County, and it is unknown what, if any, cities also adopted it.

There is an ongoing need to work with additional local jurisdictions to revise their checklists and provide accompanying training guidelines on practices that could be included in new redevelopment projects.

Activity 7.1: Encourage the Adoption of the CEQA Checklist Revisions in Additional Jurisdictions

This should include an assessment of which jurisdictions still have not adopted the CEQA checklist (likely to be most cities), and redistributions and outreach to those jurisdictions to encourage its adoption.

Activity 7.2: Provide Accompanying Training Materials and Workshops

The CEQA additions training manual should be updated to incorporate new BMPs and distributed with the checklist. Regional training workshops should be conducted for planners to familiarize them in more detail with the issue. These trainings should include on-the-ground demonstrations to gain an understanding that may be lacking when plan-checking in the office. BMPs are often very simple, both structurally and functionally, and with an improved understanding of them, planners can ensure that they are included in new or redevelopment projects.

Activity 7.3: Conduct Follow Up Evaluations

Follow-ups should be conducted with planning department management to ensure that the checklist revisions are incorporated into their review process. Evaluations should also include an assessment of whether the revisions are leading to the inclusion of additional BMPs in projects.

Activity 7.4: Planning and Policy Working Group

Host a set of working group meetings among those responsible for regulating new development for the protection of water quality. The working group should discuss how their permitting activities can be consistent with Urban Runoff Action Plan strategies and how required updates to various ordinances (Phase II requirements, Local Coastal Program [LCP] updates) can support the implementation of these activities.

ACTION PLAN II: REGIONAL MONITORING, DATA ACCESS, AND INTERAGENCY COORDINATION

The second Water Quality Protection Program (WQPP) plan developed in 1996 addresses the need for a continuous and coordinated strategy for regional monitoring of water quality and compilation of water quality data on a regional level. It also addresses the need for a continuous regional framework for coordinating ways to address water quality, implement and update the WQPP plans and develop new ones where needed.

Strategy WQPP-8: Increase Regional Monitoring

The objective of this strategy in the original plan was to coordinate and strengthen existing monitoring activities within the Sanctuary and its adjacent watersheds, and to develop a cost-effective, comprehensive approach to providing managers, local agencies, and the public with information they need to protect aquatic resources.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Conduct Preliminary Assessment of Monitoring Programs in Sanctuary Region	Completed, Needs Update
Expand Assessment and Conduct Workshop to Develop Initial Recommendations	Completed, Needs Update
Evaluate Other Existing Regional Monitoring Approaches for Lessons Learned	Ongoing
Identify Specific Questions and Parameters To Be Monitored	Completed, Needs Update
Analyze Existing Monitoring Station Locations	Partial Implementation
Produce Regional Monitoring Plan	Completed, Needs Update
Develop Program Infrastructure To Sustain Long-Term Effort	Partial Implementation
Implement Monitoring Program	Substantial Implementation
Review, Interpret, and Communicate Results	Partial Implementation

Significant implementation has been initiated on regional coordination and strengthening of government-collected data and volunteer data, and on the development of a regional monitoring program. As recommended in the plan, the Central Coast Regional Water Quality Control Board (CCRWQCB) has led the formation of a regional monitoring program called the Central Coast Ambient Monitoring Program (CCAMP). CCAMP collects long-term data on a rotational basis in several Sanctuary watersheds as well as monitoring of critical river mouths. It has also coordinated a regional monitoring effort, the Central Coast Long-term Environmental Assessment Network (CCLEAN), with the sewage treatment plants within the Sanctuary to develop ambient water quality data in addition to effluent monitoring. The variable nature of state funding and budget cuts has unfortunately led to monitoring program reductions in some of these programs.

For volunteer monitoring, the Sanctuary Citizen Watershed Monitoring Network (SCWMN) has been established to coordinate approximately twenty volunteer monitoring groups in the Sanctuary watersheds. The Network provides standardized training and equipment, a regional website, guidance on data entry, media publicity to inform the public, and coordination and outreach to resource managers on monitoring results. It is also implementing a certification program that can be used to rank the quality of data collected by volunteers. The program also coordinates and sponsors several regional monitoring programs, including an Urban Watch program focused on dry weather storm drain sampling, a First Flush program focused on sampling of the first heavy rain of the season, and a Sanctuary-wide Snapshot Day event that samples urban and rural water quality on Earth Day each year. These volunteer monitoring efforts are a partnership between the Sanctuary Foundation (SF), Coastal Watershed Council (CWC), the Regional Water Quality Control Board (RWQCB), California Coastal Commission (CCC), local cities, and volunteers.

Although considerable progress has been made on development and implementation for both government and volunteer monitoring programs, much work remains to continue and improve the efforts.

Activity 8.1: Develop a Core Set of Data for Long-term Assessments

A core set of data sufficient for long-term assessment and trend analysis should be identified, which can be continuous over many years, and monitoring programs to collect these data should be continued or initiated. This core set of data would be the focus during budget cutbacks.

Activity 8.2: Integrate Regional Monitoring Across Agencies

The Sanctuary should work with the CCRWQCB to integrate monitoring efforts with additional programs throughout the Sanctuary, including the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB

Activity 8.3: Enhance Training Assistance and Certification of Volunteer Monitoring Groups and Coordination of Annual Events

Year-round coordination, training and assistance should be enhanced for existing and new volunteer groups to improve their effectiveness and longevity. MBNMS should also continue coordination of large annual volunteer events such as Urban Watch, First Flush, and Snapshot Day.

Activity 8.4: Improve Public Awareness of Monitoring Efforts

Additional work is needed to improve public awareness of monitoring efforts, particularly of volunteer groups, including efforts with print, radio and TV media.

Strategy WQPP-9: Increase Access to Monitoring Data

The objective of this strategy in the original plan was to develop a digital data access system to link water quality data and related parameters for the Sanctuary's watersheds and ocean areas. This database was to provide environmental scientists and resources managers with the tools to evaluate problems and make environmental management decisions.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Identify Existing Monitoring Data Sets	Completed, Needs Update
Form Interagency Data Task Force	Partial Implementation
Identify Specific Questions To Be Answered by Data	Substantial Implementation
Identify and Evaluate Existing Database Systems and Networks	Substantial Implementation
Identify Relevant Data, Standard Format and Access System Design	Partial Implementation
Develop Quality Assurance/Quality Control (QA/QC) Protocols and MOAs	Partial Implementation
Develop Metadata and Summary Data for Each Program	Partial Implementation
Conduct Annual Performance Review	Partial Implementation

The Sanctuary and Environmental Protection Agency (EPA) conducted an initial summary of data sets available. The RWQCB has developed a regional database and Geographic Information Systems (GIS) mapping system for CCAMP to display water quality data collected by the RWQCB. The SCWMN has also been working with the RWQCB to allow display of its data in a volunteer version of the CCAMP system. CCAMP and the SCWMN have been working to develop QA/QC protocols and work with watershed groups to adopt these procedures. The Central Coast Joint Data Committee (CCJDC) administered by the Association of Monterey Bay Area Governments (AMBAG) has also made progress in compiling and sharing GIS information on the region's watersheds including topography, land use, parcels, etc. CCAMP and the SCWMN have produced annual or event-related summary data reports (e.g., First Flush, Snapshot Day, and Urban Watch). However, additional work remains to be done by these groups and others to facilitate the display and ready access to water quality data and related information from a variety of sources.

Although significant progress has been made on this strategy, additional work remains to be conducted to integrate information from a number of sources into the Sanctuary Integrated Monitoring Network (SIMoN), and package it in a user-friendly way as a decision-making tool.

Activity 9.1: Integrate Water Quality Data with SIMoN

Water quality monitoring should be integrated with the SIMoN program, and coordinated with biological monitoring efforts. Additional evaluation should be conducted to determine if the CCAMP database can meet Sanctuary needs, and either move to expand this system or develop alternative approaches to link with federal, state, county and university data.

Activity 9.2: Certify Data Quality for Volunteer Groups and Incorporate into Database

The version of the database for volunteer data should be expanded. This will require certification of the data quality of additional watershed groups, including developing QA/QC protocols for their data.

Activity 9.3: Improve Packaging and Distribution of Data to Decision Makers and the Public

Additional focus needs to be directed to packaging and distributing both government and volunteer data to decision makers in an understandable way, and working with them to conduct follow up to track and reduce sources of contamination. This should include an annual report of water quality trends in the Sanctuary that integrates data from a number of programs.

Strategy WQPP-10: Increase Interagency Coordination

The objective of this strategy in the original plan was to develop a continuous regional framework for coordinating ways to address water quality, implement and update the WQPP plans and develop new ones where needed.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Establish a Management Council for The WQPP	Partial Implementation
Establish Linkages with Other Groups	Substantial Implementation
Coordinate Implementation of WQPP Strategies	Substantial Implementation
Prioritize Funding Goals	Substantial Implementation
Coordinate Permit Review	Partial Implementation
Coordinate Enforcement Activities	Partial Implementation
Evaluate New Problems and Develop New Strategies	Substantial Implementation

The WQPP committee served as a coordinated regional framework during the development of the first four plans and assists in coordinating their implementation. Various subgroups and members of the committee work together with Sanctuary staff to pursue specific implementation projects, pursue funding, etc. A charter for a more formal Water Quality Council (WQC) was developed several years ago, but has not been implemented. As part to the Joint Management Plan Review (JMPR) review, the WQPP committee indicated that the basic format of the existing committee meets the needs of the WQPP and can serve to address the major steps in this strategy, and that a more formal WQC is not necessary. Regarding evaluating new problems and issues, many committee members assisted with the development of the Beach Closures Action Plan, and implementation of this plan will eventually be overseen by the committee.

Activity 10.1: Review and Update Committee Membership and Structure

Committee membership should be reviewed and potentially expanded to incorporate new issues and activities. Establishment of ongoing subcommittees that oversee implementation of individual plans should also be considered, as this approach has been very effective in implementing the Agriculture and Rural Lands Plan.

Activity 10.2: Continue Regular Committee Meetings and Coordination to Oversee Implementation and Address New Issues

The committee needs to reestablish a regular quarterly meeting schedule that has been interrupted by a staff vacancy, as well as coordinate between meetings on a regular basis. Committee meetings and other communications should focus on overseeing and enhancing joint implementation of the plans, evaluating progress, and addressing new issues as they arise.

Activity 10.3: Coordinate WQPP Funding

The committee's efforts should include coordinating grant applications with partners, working with MOA signatory agencies to highlight WQPP plans in their grant Request for Proposals (RFPs), and strengthening fundraising efforts through the Sanctuary Foundation (SF).

Activity 10.4: Summarize WQPP Implementation

The MBNMS and its water quality partners will periodically develop reports and host workshops on implementation, and assess next steps, identify partnerships and water quality trends.

ACTION PLAN III: MARINAS AND BOATING

This action plan developed in 1997 describes strategies designed to reduce water pollution from certain activities associated with marinas and boating within the Sanctuary. Boater-generated impacts on water quality generally fall into four categories: toxic metals primarily from anti-fouling paints, hydrocarbons from motor operation and maintenance procedures, solid waste and marine debris from overboard disposal, and bacteria and nutrients from boat sewage. This plan took the approach that much of this pollution can be reduced through education and training programs, application of new technologies and on-site facilities.

Strategy WQPP-11: Increase Public Education, Outreach, and Enforcement

The objective of this strategy in the original plan was to expand and build upon existing efforts conducted by individual harbors to develop a coordinated regional education and outreach program. These programs sought to communicate to boaters the environmental, recreational and economic impacts of pollution.

The recommendations listed under the following activities generally consist of similar actions that can be generalized as:

A. Compiling existing materials for each topic;
B. Defining programs and target audiences;
C. Preparing materials and developing distribution networks and programs; and,
D. Contacting the targeted audiences with the materials/implementing programs.

Implementation of Water Quality Protection Program (WQPP) Steps as of 2004

Steps	Implementation Status
Review Existing Materials, Define Audience/Topics	Completed
Bilge Wastes and Waste Oil Education	Substantial
Product Information/Toxics Disposal Education	Partial Implementation
Marine Debris Education	Partial Implementation
Vessel Fueling Education	Not Initiated
Sewage Discharge Education	Partial Implementation
Underwater Hull Cleaning Education	Not Initiated
Education on Existing Laws	Substantial Implementation
Develop an Ongoing Distribution Program	Partial Implementation
Encourage Community Use/Stewardship of Harbor	Not Initiated

There are several active partners that have been developing and distributing informational and educational products for over five years, including Save Our Shores' (SOS) Clean Boating Network and the California Coastal Commission's (CCC) Boating Clean and Green Program. Grant funded educational efforts developed by the Sanctuary and/or SOS includes a harbor water-quality poster, water quality signage put in place at all the harbors, signage at bilge pumpout facilities, and a bilge pumpout brochure. SOS also has developed a Dockwalker program that conducts one-on-one outreach and distributes educational materials to boaters at the

harbors. Education and promotional activities have also accompanied the installation of new bilge pumpout facilities at all of the harbors.

This strategy will build upon and expand existing materials and programs and make outreach a regular occurrence.

Activity 11.1: Sustain and Develop One-on-one Boater Outreach Programs

The WQPP should work with various organizations to sustain and develop one-on-one programs with boaters such as Dockwalkers, including recruitment of volunteers and obtaining funding. This should include efforts to distribute materials and discuss with boaters the above list of water quality issues, with special emphasis on use of the bilge water and sewage disposal stations, and on hull cleaning practices that can affect both water quality and introduced species problems.

Activity 11.2: Vessel Fueling Education

Work with the Office of Oil Spill Protection and Response (OSPR) Outreach Program to educate small craft refueling docks as to their responsibility to prevent spills, liability for damage caused by oil spills, and spill notification requirements. Work with the Department of Fish and Game (CDFG) Outreach program to educate small craft refueling docks regarding applying to be registered and certified as "exempt" fuel docks (exempt from Certificates of Financial Responsibility and formal Oil Spill Contingency Plan requirements).

Activity 11.3: Enforcement

As a supplement to educational efforts, MBNMS will conduct general enforcement patrols and follow up on reported violations to address discharges of sewage, oily bilgewater and trash. MBNMS will also inspect MSDs to ensure that they are in compliance with Sanctuary regulations that prohibit the discharge of untreated sewage.

Strategy WQPP-12: Develop and Implement Technical Training Program

The objective of this strategy in the original plan was to develop and implement a regional technical training program for harbor, marina, and boatyard employees within the Sanctuary.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Identify Subject Areas	Completed
Compile Training Materials	Completed
Identify Instructors, Trainers, and Funding	Partial Implementation
Solicit Participation and Develop Incentives	Partial Implementation
Conduct Regional and On-Site Workshops	Partial Implementation
Evaluate Workshops and Modify as Needed	Not Initiated

General training modules about water quality were compiled for the harbors, and the package was introduced to several of the harbors as part of their training for the bilge water pumpout facility. Ongoing regional training has not been addressed, except for any staff training efforts already underway by harbormasters.

A review of technical training needs and opportunities should be conducted and programs developed to address gaps.

Activity 12.1: Update Training Materials as Necessary

Activity 12.2: Identify and Pursue Opportunities to Conduct On-site Trainings

Strategy WQPP-13: Promote Bilge Waste Disposal and Waste Oil Recovery

The objective of this strategy was to facilitate the collection of contaminated bilge water through the construction and operation of new bilge water pumpout and waste handling facilities.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Initiate Public Education Program	Substantial Implementation
Provide Absorbent Pads	Substantial Implementation
Identify Permits and Memorandum of Agreement (MOAs)	Completed
Identify Funding Sources	Completed
Identify Technology	Completed
Identify Appropriate Sites	Completed
Construct Pumpouts	Substantial Implementation
Publicize Location/Increase Enforcement	Partial Implementation

In 1999, the Sanctuary, in collaboration with Ecology Action and SOS, received a grant from the California Integrated Waste Management Board (CIWMB) to install bilge and crankcase oil pumpouts at Monterey and Moss Landing harbors, and to distribute absorbent pads. SOS installed another system in Santa Cruz harbor in 2002 through a similar grant. These systems, with a significant amount of education and promotion, have been very successful, leading to the recycling of over 8,000 gallons of oil in Monterey and Moss Landing harbors. The systems, however, have proven to be expensive to operate and maintain for the harbors. In addition, the pre-existing pumpout station at Pillar Point harbor has aged significantly and is now of insufficient capacity, and needs to be replaced.

The bilge pumpout system equipment and procedures should be updated as needed, and the use of the facilities promoted.

Activity 13.1: Develop Incentives and Promotions to Encourage Facility Use

Incentives should be developed to encourage boaters to use the pumpouts, along with an ongoing outreach program to promote the facilities.

Activity 13.2: Increase the Economic Viability of the Pumpout Systems

Measures should be developed that will make the region's systems more economical to maintain, including revisiting the idea of sending the cleaned effluent to the sewer treatment plant or using a low-threat discharge permit.

Activity 13.3: Upgrade the Bilge Pumpout Facility at Pillar Point

The WQPP should work with the harbor to obtain funding for a new system, as well as assist with coordinating an appropriate disposal method.

Strategy WQPP-14: Topside and Haul-out Vessel Maintenance

The objective of this strategy in the original plan was to identify and promote regional guidelines on practices that reduce contaminants from hull wash-water and first flush runoff from boatyards and parking lots. Additionally, it sought to promote continued and expanded use of dust and drip containment methods and paint stripping technologies and products that result in reduced emissions. It recognized the need to review the effectiveness of policies and pollution controls addressing maintenance work at boat slips, parking lots, and unregulated work areas, and to promote boat maintenance methods that generate less pollution through education efforts and/or "Clean Worker Contract" programs.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Promote New Stripping/Refinishing Technologies	Not Initiated
Improve Containment and Filtering of Paint	Not Initiated
Ensure Compliance with Existing Regulations	Not Initiated
Improve Control and Filtering of Runoff	Not Initiated
Review Policies Regarding Work in Slips/Parking Lots	Not Initiated

No specific targeted work was conducted by the Sanctuary on this strategy, although various harbors and boatyards may have been addressing parts of the strategy.

Contaminants from hull wash-water and runoff from boatyards and parking lots should be addressed by improved management practices.

Activity 14.1: Promote New Stripping and Refinishing Technologies

Activity 14.2: Improve Containment and Filtering of Paint

Activity 14.3: Ensure Compliance with Existing Regulations

Activity 14.4: Improve Control and Filtering of Runoff

Activity 14.5: Review Policies Regarding Work in Slips/Parking Lots

Strategy WQPP-15: Underwater Hull Maintenance

This strategy in the original plan sought to initiate a program targeted at boat hull maintenance that promotes less toxic paints and improved underwater cleaning practices to reduce discharges to harbor waters. This would be accomplished by distributing information on less toxic paints and results of demonstration projects that evaluate new materials and maintenance methods that reduce discharges. The need to consolidate and promote guidelines for bottom paint preparation and to reduce excessive sloughing of paint was also identified. This strategy sought to initiate a

training and certification program for divers who conduct underwater cleaning to reduce discharges from hull cleaning practices.

Implementation of WQPP Steps as of 2004

Steps	Implementation Status
Promote Safe Marine Products	Partially Implemented
Promote Results of Demonstration Events	Not Initiated
Improve Bottom Paint Preparation	Not Initiated
Initiate Hull Training and Cleaning Certification	Not Initiated

No specific regional work has been conducted on this strategy, although the California Clean Boating Network is considering the issue, and safe products lists have been included in education materials.

Improvements in underwater hull maintenance should be implemented due to the potential to discharge numerous toxic chemicals into harbors and due to the growing concern regarding introduction of exotic species into harbors and coastal areas. Boaters and harbormasters need to be updated on newly developed improved methods and need to have resources available to disseminate to interested boaters. Guidelines should include recommendations on preventing the spread of introduced species in addition to reducing water quality contamination.

Activity 15.1: Promote Safe Marine Products and Procedures for Antifouling Use

Safe products for use as hull paints should be identified and promoted via outreach and demonstration events. Proper techniques for bottom paint preparation to reduce sloughing should also be included in the guidelines and demonstrations.

Activity 15.2: Initiate Guidelines and Trainings for Hull Cleaning

Develop guidelines and training for divers who conduct underwater hull cleaning, including recommendations to reduce water quality contaminations and spread of exotic species. Consider development of a certification program for cleaners who use proper techniques.

ACTION PLAN IV: AGRICULTURE AND RURAL LANDS

The Agriculture and Rural Lands Plan was developed in 1999 to address agricultural runoff in the form of sediments, nutrients and persistent pesticides. The original plan outlines six sections, containing twenty-four strategies and ninety activities intended to protect and enhance the quality of water that drains into the Sanctuary while sustaining the economic viability of agriculture. To more briefly summarize these recommendations for inclusion in the MBNMS Management Plan, each of the six chapters or sections of the original plan is here termed a strategy, and each of the original twenty-four strategies is here termed an activity. This allows for the omission of some of the detailed steps that can be referred to in the original plan. The strategies include organizing agricultural industry networks and watershed groups, increasing technical assistance and education, funding and economic incentives for conservation measures, permit coordination for conservation practices, and improving maintenance practices for rural roadways and public lands.

The many partners that are working together throughout the six-county area on implementation of the Agriculture and Rural Lands Plan are known as the Agriculture Water Quality Alliance (AWQA). AWQA includes agriculture industry groups, federal, state, and local agencies, technical experts, environmental organizations and university researchers. The AWQA Steering Committee, directing the effort, has representatives from the Sanctuary, Coalition of Central Coast County Farm Bureaus, Natural Resources Conservation Service (NRCS), Resource Conservation Districts, and University of California, Cooperative Extension (UCCE).

Because the Agriculture and Rural Lands Plan is relatively new, there has been less time for implementation to proceed and the original recommendations are still relevant. Therefore, we are using a slightly different format to identify future activities for this portion of the WQPP plan, as all current strategies and activities in the original plan will be maintained as future activities in this JMPR action plan. Also, as this is a much longer plan in terms of number of original strategies and activities, both the recommendations and the implementation to date are summarized only at a broad level.

Strategy WQPP-16: Establish Agricultural Industry Networks to Address Water Quality

The three activities in this strategy establish a process for developing industry-led networks of landowners and operators to address agricultural nonpoint pollution issues. Watershed-level agricultural working groups will be established in the Sanctuary's watersheds, under the leadership of existing large agricultural organizations such as Farm Bureaus and related industry groups. These industry networks will take the lead in organizing and working with their own members to establish joint projects for nonpoint source management in priority watershed areas. Activities in this section also include identifying priority target regions for joint projects, conducting outreach on nonpoint issues, assisting growers and ranchers in developing and carrying out voluntary site-specific management plans, obtaining outside technical assistance as needed, and tracking implementation success over time.

Activity 16.1: Establish Regional Industry Networks as a Framework for Addressing Nonpoint Source Management

Activity 16.2: Identify Priority Sites for Landowner Joint Projects

Activity 16.3: Implement Nonpoint Source Management Practices Using Industry-Led Watershed Groups

Implementation of WQPP Steps as of 2004

The Coalition of Central Coast County Farm Bureaus formed in 2000 to oversee the agricultural industry's regional implementation of this plan, and continues to meet quarterly. Ten Agricultural Watershed Working Groups have been organized by the Coalition since then. Over 150 farmers and ranchers participate in these groups by developing water quality plans for their properties and installing conservation practices that reduce erosion and nutrient runoff. Water quality plans have been developed for 97,200 acres of crop and rangeland, and applied on 77,500 acres of crop and rangeland. A diversity of crops are represented in Agricultural Watershed Groups: cattle, vegetables, vineyards, orchards, field and greenhouse flowers, strawberries, pumpkins, etc. Many additional groups are in the process of being formalized. Additional work is needed to ensure that growers who are not part of existing large organizations are also reached. A Technical Advisory Committee has established a template for annual tracking of on-the-ground implementation of practices, and has initiated water quality monitoring surrounding a pilot subwatershed.

Strategy WQPP-17: Strengthen Technical Information and Outreach to Agriculture

Although extensive technical information exists on agricultural techniques and tools to improve water quality, this information is not always readily available/easily usable for growers and ranchers. This strategy contains seven activities developed to make this information more accessible and useful through increased support for existing technical outreach services, development of networks, cross-training of outreach staff, packaging of easily understood information, and conducting on-site follow-up with workshop participants.

Activity 17.1: Compile, Develop and Distribute User-Friendly Technical Information on Agricultural Conservation Practices

Activity 17.2: Strengthen Referral Network and Cross-Training in Sediments, Nitrates And Pesticides For Technical Field Staff

Activity 17.3: Increase Agency Staff Time to Provide Technical Field Support and Prevention Efforts

Activity 17.4: Strengthen Information Transfer From Industry to Agencies to Keep Up-To-Date On Technical Advances in Conservation Measures

Activity 17.5: Strengthen Grower/Rancher Peer Advisory Networks to Share Conservation Information Among Peers, Including Outreach to Both Landowners And Tenants

Activity 17.6: Evaluate And Distribute Information on Cost-Effectiveness of Water Quality Management Practices

Activity 17.7: Develop And Promote Self-Monitoring Tools for Conservation Management Practices to Assess Problems And Track Success

Implementation of WQPP Steps as of 2004

Using a congressional allocation from the United States Department of Agriculture (USDA) to implement the Sanctuary's agricultural plan, several technical field staff have been hired by the agricultural agencies to assist farmers and ranchers in the six-county area, including an Agronomist, Water Quality Monitoring Specialist, Rural Roads Engineer, Rangeland Specialist, Irrigated Agriculture Specialist, Hydrologist, and an Outreach Coordinator.

Over 300 farmers and ranchers have attended a UCCE training course designed to help farmers develop individual water quality protection plans for their properties. Numerous workshops have been held to train farmers in the benefits and use of specific conservation practices such as cover crops, stream bank protection, irrigation evaluation, and crop row alignment. Training on monitoring practices has also been conducted for the Farm Bureau coordinators.

Research has been completed on the cost effectiveness of fifteen common conservation practices used in the six-county region. This information will be a useful tool for landowners to understand the financial costs and benefits of each practice.

Strategy WQPP-18: Improve Education and Public Relations on Watersheds and Agricultural Conservation Measures

There is a need for improved education of the general public about agricultural conservation issues, and of agricultural groups and the public about watershed issues as a whole. The three activities in this section were developed to enhance public, grower, government agency, and media knowledge about watershed issues, and develop better recognition of the conservation practices that the agricultural community employs.

Activity 18.1: Increase Public Knowledge of and Support for Agriculture and Agricultural Conservation Measures through Media and Outreach

Activity 18.2: Increase Grower and Public Awareness of Watershed-Based Management by Incorporating Watershed Message into Existing Programs and Media Outreach

Activity 18.3: Increase Agency Staff Understanding of Agriculture Through Development of Bulletins and Conducting Tours

Implementation of WQPP Steps as of 2004

Two major press events have been held to highlight AWQA activities and promote conservation practices. A public relations firm was contracted to help develop a media kit explaining watershed management and agricultural conservation practices that protect water quality. A freelance journalist has been contracted to develop stories on conservation practices for both general media and industry trade journals. Resource agency staff have attended many of the agricultural workshops and field days hosted by AWQA partners. The UCCE Farm Water Quality Short Course, taken by all members of Watershed Working Groups, includes an overview presentation on watershed definition and function. An AWQA website is currently under construction, designed to educate both the public and the agriculture industry about watershed management and agricultural conservation practices. Additional outreach models need to be developed to inform farmers and ranchers who are not involved in the Farm Bureau, or who do not speak English as a primary language.

Strategy WQPP 19: Coordinate and Streamline Regulations for Conservation Projects

This strategy stems from comments from both agency staff and landowners on the difficulty of the existing permitting process for conservation practices due to multiple agencies having jurisdiction over projects. A grower or rancher may need multiple permits from each of several agencies at the local, state, and federal levels, with separate fees, different requirements, different timelines, and sometimes contradictory mandates, even for projects that have a beneficial impact on water quality such as sediment basins, vegetative buffers, etc. The three activities in this section were developed to simplify and coordinate the existing permitting process for practices that protect water quality, more effectively apply existing regulations, and strengthen collaborative efforts between the regulatory agencies and the landowners.

Activity 19.1: Develop User-Friendly Permit Guidebooks

Activity 19.2: Develop Regional or Watershed-Based Permits for Conservation Management

Activity 19.3: Improve Collaborative Efforts Between Regulatory Enforcement Agencies and Landowners

Implementation of WQPP Steps as of 2004

A watershed-level permit for water quality improvements has been developed for the Salinas Valley, modeled after the successful Elkhorn Slough permit coordination program. Under a watershed permit, conservation practices are pre-approved by the agencies, and growers can

work directly with the NRCS to design and install the conservation practice. This is expected to lead to an increased number of on-the-ground projects that protect water quality. A promotional brochure on the permit streamlining program for the Salinas Valley has been developed and distributed. Work has begun to develop a similar streamlining program in Santa Cruz County.

Strategy WQPP-20: Improve Funding Mechanisms and Incentives for Water Quality Improvements

Growers and ranchers are sometimes discouraged from installing conservation practices due to the initial costs for construction and then ongoing maintenance. The five activities in this section include ways to assist landowners and tenants in developing funding and economic incentives for agricultural conservation measures, and to promote their long-term economic benefits. Also included are strategies to inform growers and ranchers about tax policies that provide tax relief for implementing conservation measures, and to develop new policies that can serve as an additional incentive for voluntarily adopting such measures.

Activity 20.1: Improve Agricultural Community's Knowledge of and Access to Funding Sources

Activity 20.2: Facilitate Availability of Trained Assistance for Conservation Field Projects

Activity 20.3: Broaden Applicability of Cost-Share Programs for Conservation Measures and Streamline Application Process

Activity 20.4: Increase Understanding of Existing Tax Benefits for Installing Water Quality Conservation Measures

Activity 20.5: Improve Tax Incentives for Implementing Conservation Measures

Implementation of WQPP Steps as of 2004

The Farm Bureaus have obtained funding to assist their watershed working groups from state grants and private funding sources. NRCS has also substantially increased its funding under the EQIP cost-share program to growers installing conservation projects in several key Sanctuary watersheds. Additional funding sources are available under the new Farm Bill. However many of the specific recommendations in this section regarding improving funding for conservation measures have not been initiated.

Strategy WQPP-21: Improve Water Quality Management on Public Lands and Rural Roads

This section addresses management issues for public and private rural lands that may include activities other than farming and ranching. Roadways in rural areas can generate significant erosion and sedimentation problems if not properly maintained. The intent of the three strategies in this section is to improve both public and private planning and maintenance practices for rural roadways, in order to reduce erosion and properly dispose of sediment. In addition, this section includes a strategy to address the management and maintenance related to erosion on public trust lands, which is often deficient due to a lack of foresight and funding for long-term maintenance/improvement needs.

Activity 21.1: Provide for Maintenance Practices to Address Sedimentation on Public Roads and Waterways

Activity 21.2: Reduce Sedimentation from Rural Unsurfaced Roads and From Surfaced Roads

Activity 21.3: Improve Conservation Measures on Agency/Public Trust Lands

Implementation of WQPP Steps as of 2004

Training workshops for Public Works staff have been presented in Santa Cruz and San Mateo Counties. Guidelines for road maintenance practices that can prevent sedimentation and erosion are being finalized in Santa Cruz County and will be distributed to other counties for adoption of similar practice standardization. The recently hired Rural Roads Engineer (NRCS) has undergone training to begin his advisory role in the six-county area. However, this section of the plan has not yet received a strong focus due to attention paid to the agricultural sections of the plan in early years.

ACTION PLAN V: PROTECTING WATER QUALITY IN WETLANDS AND RIPARIAN CORRIDORS

The original scope of the Water Quality Protection Program (WQPP) as defined by the WQPP Committee was to include an action plan that addressed issue of Wetlands and Riparian Corridors. This was to be the programs sixth action plan (Beach Closures and Microbial Contamination will be fifth), but resource limitations have prevented its development up to this point. The WQPP will develop this action plan in the future as resources permit, and the following is a skeleton outline of the action plan that was developed by the WQPP Committee.

Strategy WQPP-22: Develop Wetlands and Riparian Corridor Action Plan

Activity 22.1: Develop and Implement Wetlands and Riparian Corridors Action Plan

Monterey Bay National Marine Sanctuary (MBNMS) Staff will use the following outline to develop the Wetlands and Riparian Corridors Action Plan

Goals:

- To recognize the relationship between water quality, wetlands and riparian corridors
- To inventory central California coastal wetlands and evaluate potential impacts
- To identify problems with the existing system of wetland/riparian protection and develop policy guidance that addresses these problems
- To integrate land-use planning objectives and resolve conflicts between flood control and wetlands/riparian conservation and restoration
- To implement restoration and protection projects
- To complement existing WQPP action plans and further program goals

Wetland Inventory and Assessment

- Create map of historic central California coastal wetlands
- Compile inventory of existing central California coastal wetlands that identifies location, health, functioning, and projected impacts

Wetland Regulation and Permit Review

- Identify and develop mechanisms to ensure consistent wetland and riparian corridor regulation and protection
- Develop and implement permit streamlining mechanisms for restoration activities
- Design and implement wetlands and riparian corridor education and outreach programs to landowners
- Evaluate and design strategies that eliminate or reduce wetlands permitting obstacles, legal liabilities for created wetlands, and vector control concerns

Integrate Land-Use Policy Objectives and Administer Conflict Resolution

- Remove liabilities for flood control agencies
- Resolve conflicts between flood control agencies and wetland and riparian corridor protection and restoration activities

Wetlands Restoration

- Review existing restoration information to establish benefits to water quality from restoring coastal wetlands – identify gaps in knowledge and initiate research recommendations
- Establish criteria for future restoration and allowances for appropriate uses of created wetlands for water quality protection purposes
- Develop incentives for wetlands/riparian protection (e.g., cost-sharing programs, safe harbor programs, regulatory flexibility and streamlining, reduced/waived fees, etc.)
- Develop funding partnerships
- Using inventory and assessment information and permit streamlining mechanisms, identify priority areas for restoration, obtain funding, and implement projects
- Integrate monitoring to restoration activities for long-term water quality trend analysis

Wetland Policy and Action Plan Implementation

- Develop guidance document for local planners for policy integration into general plans, design standards, California Environmental Quality Act (CEQA) review, and local coastal programs
- Coordinate and link implementation of plan with existing WQPP action plans

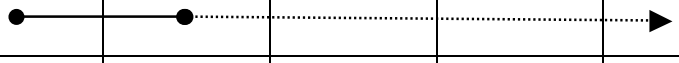
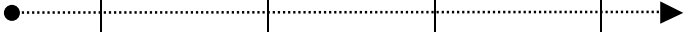
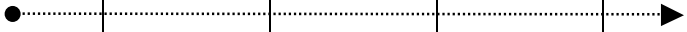
Action Plan Partners: California Coastal Commission, Environmental Protection Agency, California Department of Fish and Game, United States Fish and Wildlife Service, U.S. Army Corps of Engineers, Association of Monterey Bay Area Governments, State Parks, property owners, Academic and Research Institutions, Central Coast Joint Data Committee, Coastal Conservation Corps, California Watershed Network, existing WQPP partners, Regional Water Quality Control Boards, NRCS, RCDs, Local Jurisdictions, Agricultural Watershed Working Groups, Private Foundations, California Coastal Conservancy, NGOs, AWQA, Farm Bureau Coalition, USGG, Local and Regional Flood Control and Planning agencies, Counties, land trusts, Bureau of Land Management, United States Forest Service, local park districts, Monterey Regional Water Pollution Control Agency, schools, business organizations, developers, volunteer monitoring groups, State Water Resources Control Board, Ocean Conservancy, California Department of Fish and Game Office of Spill Prevention and Response, Harbormasters, Memorandum Of Agreement signatories, paint supply companies, boating organizations, California Clean Boating Network, independent hull cleaners, boatyards.

Table WQPP.1: Measuring Performance of the Water Quality Protection Program Implementation Action Plan

Desired Outcome(s) For This Action Plan**:**	
Prevent impacts to MBNMS resources and qualities from point and nonpoint source pollution resulting from urban, rural and agricultural runoff.	
Performance Measures	**Explanation**
Increase acreage of agricultural lands with improved water quality management practices from 77,500 acres in 2005 to 150,000 acres by 2010.	Expanding the Agricultural and Rural Lands Water Quality Program will increase the acreage with management plans that address soil erosion, sediment control and subsequent loss of fertilizers and pesticides used in the soil. Performance in implementing this program will be evaluated by tabulating the expansion of the program to new farms on an annual basis
Reduce the concentrations of urban water quality contaminants by 50% in 2010.	MBNMS, in coordination with its partners, will track the contaminants in urban water quality as reported through the First Flush program, Urban Watch, and monthly reporting by the County Environmental Health Departments and RWQCB.

Table WQPP.2: Estimated Timelines for the Water Quality Protection Program Implementation Action Plan I: Urban Runoff

Water Quality Protection Program Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy WQPP-1: Increase Public Education and Outreach					
Strategy WQPP-2: Increase Technical Training					
Strategy WQPP-3: Collaborate with Regional Urban Runoff Management Efforts					
Strategy WQPP-4: Promote Structural/Non-structural Controls					
Strategy WQPP-5: Promote Sedimentation/ Erosion Controls					
Strategy WQPP-6: Increase Storm Drain Inspection					
Strategy WQPP-7: Produce and Promote CEQA Additions					
Strategy WQPP-8: Increase Regional Monitoring					
Strategy WQPP-9: Increase Access to Monitoring Data					
Strategy WQPP-10: Interagency Coordination					
Strategy WQPP-11: Increase Public Education and Outreach					
Strategy WQPP-12: Develop and Implement Technical Training Program					
Strategy WQPP-13: Promote Bilge Waste Disposal and Waste Oil Recovery					
Strategy WQPP-14: Promote Topside and Haul-out Vessel Maintenance					
Strategy WQPP-15: Increase Underwater Hull Maintenance					

Water Quality Protection Program Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy WQPP-16: Establish Agricultural Industry Networks to Address Water Quality					
Strategy WQPP-17: Strengthen Technical Information and Outreach to Agriculture					
Strategy WQPP-18: Improve Education and Public Relations on Watersheds and Agricultural Conservation Measures					
Strategy WQPP-19: Coordinate and Streamline Regulations for Conservation Projects					
Strategy WQPP-20: Improve Funding Mechanisms and Incentives for Water Quality Improvements					
Strategy WQPP-21: Improve Water Quality Management on Public Lands and Rural Roads					
Strategy WQPP-22: Develop Wetlands and Riparian Corridor Action Plan					

Legend	
Year Beginning/Ending :	Major Level of Implementation:
Ongoing Strategy :	Minor Level of Implementation:

Table WQPP.3: Estimated Costs for the Water Quality Protection Program Implementation Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy WQPP-1: Increase Public Education and Outreach	$151	$151	$131	$131	$146
Strategy WQPP-2: Increase Technical Training	$97	$97	$92	$92	$77
Strategy WQPP-3: Collaborate with Regional Urban Runoff Management	$16	$16	$16	$16	$16
Strategy WQPP-4: Promote Structural/Non-structural Controls	$24	$24	$24	$24	$24
Strategy WQPP-5: Promote Sedimentation/ Erosion Controls	$20	$20	$12	$12	$78
Strategy WQPP-6: Increase Storm Drain Inspection	$114	$114	$114	$114	$48
Strategy WQPP-7: Produce and Promote CEQA Additions	$29	$29	$8	$8	$8
Strategy WQPP-8: Increase Regional Monitoring	$480	$480	$480	$480	$480
Strategy WQPP-9: Increase Access to Monitoring Data	$175	$115	$115	$115	$115
Strategy WQPP-10: Increase Interagency Coordination	$58	$58	$58	$58	$57
Strategy WQPP-11: Increase Public Education and Outreach	$75	$75	$75	$75	$75
Strategy WQPP-12: Develop and Implement Technical Training Program	$0	$0	$13	$13	$13
Strategy WQPP-13: Promote Bilge Waste Disposal and Waste Oil Recovery	$33	$41	$16	$16	$16
Strategy WQPP-14: Promote Topside and Haul-out Vessel Maintenance	$60	$20	$12	$12	$12
Strategy WQPP-15: Increase Underwater Hull Maintenance	$58	$28	$20	$12	$12

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy WQPP-16: Establish Agricultural Industry Networks to Address Water Quality	$24	$24	$24	$24	$129
Strategy WQPP-17: Strengthen Technical Information and Outreach to Agriculture	$129	$129	$129	$129	$30
Strategy WQPP-18: Improve Education and Public Relations on Watersheds and Agricultural Conservation Measures	$34	$34	$30	$30	$20
Strategy WQPP-19: Coordinate and Streamline Regulations for Conservation Projects	$20	$20	$20	$20	$24
Strategy WQPP-20: Improve Funding Mechanisms and Incentives for Water Quality Improvements	$24	$24	$24	$24	$48
Strategy WQPP-21: Improve Water Quality Management on Public Lands and Rural Roads	$148	$48	$48	$48	$48
Strategy WQPP-22: DevelopWetlands and Riparian Corridor Action Plan	$0	$4	$116	$56	$56
Total Estimated Annual Cost	*$1,769*	*$1,551*	*$1,577*	*$1,509*	*$1,532*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Section VII

Wildlife Disturbance

- **Marine Mammal, Seabird and Turtle Disturbance Action Plan**
- **Motorized Personal Watercraft Action Plan**
- **Tidepool Protection Action Plan**

Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Goal

Minimize disturbance of marine mammals, seabirds and turtles within the Monterey Bay National Marine Sanctuary (MBNMS).

Introduction

Over the last twenty years, increasing numbers of people have been seeking opportunities to view and experience marine wildlife. For the most part, wildlife viewing has resulted in many positive benefits including new economic opportunities for local communities, and increased public awareness and stewardship for marine resources. However, marine wildlife can be disturbed and/or injured when viewing activities are conducted inappropriately. Disturbance or injury also occurs through commercial harvest activities. Frequent disturbance can adversely affect marine species. The effects of disturbance can be especially critical during sensitive time periods such as feeding, breeding, resting, or nesting. Disturbance is likely to cause avoidance reactions and may result in interruptions of social behavior of animals and is capable of leading to long-term changes in distribution. Public awareness is necessary to effectively address wildlife disturbance issues since most people who choose to view marine wildlife do not intend to place the animals or themselves at risk.

The MBNMS addresses wildlife disturbance through a mix of education, outreach, partnerships with docent programs, regulations and enforcement. The MBNMS regulations explicitly prohibit harassment of marine mammals as defined under the Marine Mammal Protection Act (MMPA), sea turtles, and birds. Other MBNMS regulations relating to wildlife disturbance include restrictions on flying motorized aircraft below 1,000 feet in three designated sensitive areas, a prohibition on attracting white sharks, and restrictions on the use of motorized personal watercraft (MPWC). Non-regulatory measures are also used by the MBNMS to address wildlife disturbance, and include a variety of education and outreach activities and products.

Wildlife disturbance within the MBNMS is governed by several jurisdictions and and regulations stemming from the National Marine Sanctuaries Act (NMSA), the Endangered Species Act (ESA), the California Endangered Species Act (CESA), the Migratory Bird Treaty Act (MBTA), and the Marine Mammal Protection Act (MMPA). The MBNMS coordinates with National Oceanic and Atmospheric Administration (NOAA) Fisheries to evaluate acceptable levels of fishery-related bycatch to marine mammals, seabirds, and turtles under the Magnuson Stevens Act (MSFCMA). The following activities related to wildlife disturbance are prohibited within the MBNMS: discharging materials (with certain exceptions); disturbing marine mammals, sea turtles, and birds; attracting white sharks; moving, possessing any historical resource, marine mammal, sea turtle, or seabird; flying motorized aircraft below 1,000 feet in certain areas; and operation of jet skis outside of the four designated zones.

Efforts to minimize the disturbance of wildlife will focus on identifying gaps in the existing system of protection and formulating a plan to jointly develop specific, more detailed

recommendations for those topics that have emerged as priorities. Many species in the MBNMS warrant further protection via outreach, education, enforcement or other strategies designed to inform the public and specific user groups of the need to prevent wildlife disturbance within the MBNMS.

Strategy MMST-1: Mitigate Impacts From Marine Vessels

Motorboats, whale watching vessels, kayaks, and military watercraft can disturb seabird colonies, rookeries, haulout areas, or whales, particularly when operating in sensitive areas. The use of motorized or non-motorized vessels (outboard or inboard boats, kayaks, canoes, underwater scooters, or other types of water craft) to interact with marine mammals is increasing nationwide. NOAA Fisheries and the MBNMS receive complaints from members of the public of operators driving through groups of dolphins to elicit bow-riding behavior, whale watching vessels overly encroaching on whales or chasing animals, and kayakers too close to sea otters and harbor seals. Small boats particularly in areas near Elkhorn Slough and harbors may cause fatal blunt trauma injuries to sea otters. These actions can lead to many reactions in marine animals from fatality to avoidance responses and other unnatural behavior.

Activity 1.1: Develop and Distribute Wildlife Viewing Guidelines Addressing Marine Vessels

MBNMS will work to identify existing guidelines such as those generated by Watchable Wildlife, and adapt them to the MBNMS area, where appropriate. MBNMS will work with partners to distribute wildlife viewing guidelines for approaching seabirds, marine mammals, and turtles and help to identify behavioral stress patterns of the animal. Initial efforts will include identifying target audiences to determine the best ways to package and distribute guidelines and use the MBNMS website to post information pertaining to wildlife observation.

Activity 1.2: Continue and Strengthen MBNMS Team OCEAN Kayak Program

The MBNMS will continue, strengthen, and expand the MBNMS Team Ocean Conservation Education Action Network (Team OCEAN) program, which educates on-the-water kayak users in an effort to prevent disturbance or harassment to sea otters, sea lions, harbor seals, and sea birds.

Activity 1.3: Develop Informational Cards with Guidelines for Viewing Marine Species from Kayaks

The MBNMS will develop partnerships with kayak companies to attach the informational cards to kayaks. MBNMS staff should conduct bi-annual evaluations with kayak companies to ensure that these educational efforts are effective and distribute the informational cards and other signage to boating supply stores, kayak shops, or other commercial venues. MBNMS will also develop additional educational training for local kayak and scuba diving shops, in order to reduce adverse reactions in species of concern. These training sessions should be complemented by outreach workshops outlined in other activities in this strategy.

Activity 1.4: Conduct Outreach and Promotion of Wildlife Viewing Guidelines to Private Boaters

The MBNMS should conduct an assessment of the most effective way to reach boaters with educational materials, including workshops and literature, to educate them on wildlife observation guidelines and vessel operation etiquette. MBNMS will post wildlife viewing

guidelines information at launch ramps, parking areas, public restrooms, or fuel docks. Speed guidelines posted in harbors should be augmented with information about sensitive species in the area, such as sea otters. MBNMS should consider development of a "Dock Walkers" program, in which educators encounter users at the harbor and instruct them about wildlife viewing.

Activity 1.5: Continue Outreach and Promotion of Wildlife Viewing Guidelines to Whale Watching Vessels

MBNMS will conduct workshops and other training to ensure that operators of whale watching vessels are aware of the guidelines for wildlife viewing and operating in a responsible manner.

Activity 1.6: Increase Federal Inter-agency Consultation

The MBNMS should conduct outreach to military environmental liaison to ensure that the military understands MBNMS requirements. Current regulations require other federal agencies to "consult" with the MBNMS when planning projects within MBNMS boundaries. MNBNMS will conduct annual training with federal agencies to ensure that boat operators and pilots are aware of sensitive marine species areas and overflight zones. This annual training is especially important for the US Coast Guard (USCG), which experiences high rotations of staff.

Activity 1.7: Share and Distribute Detailed Geographic Information System (GIS) Data Outlining Areas of Concern

MBNMS will distrbute data identifying species distribution, migratory corridors, and seasonal patterns. This information should be included in training and provided as an ongoing tool to better coordinate military training activity to avoid impacts. MBNMS will work with the USCG pilots to facilitate their ability to download this information directly into their electronic flight planners.

Strategy MMST-2: Mitigate Impacts From Low Flying Aircraft

Low flying aircraft are known to cause seabirds, pinnipeds, and whales to exhibit avoidance responses resulting from the interactions. There are a variety of user groups associated with this activity, which may require different strategies in addressing the problem. The following actions and user groups are of concern: commercial film making flight operations, private non-profit aviation, military and agency (such as the USCG) aircraft, and other potential activities. Potential impacts from low-flying aircraft are addressed by a specific prohibition on flying under 1,000 feet in designated overflight zones with sensitive wildlife. MBNMS has begun an outreach campaign to pilot associations on the zones and the impacts of low flights, and is working to include notations on Federal Aviation Administration (FAA) aeronautical charts. Additional outreach may be required to reach aviation companies that may be conducting whale-watching trips within the MBNMS Overflight Restriction Zones. Consideration of potential impacts should be weighed for both fixed-wing aircraft and helicopters. There are inherent differences to the operating capabilities of these aircraft, and thus they cause different impacts to species of concern.

Activity 2.1: Identify MBNMS Overflight Restrictions on FAA Charts

Ensuring that correct verbiage and regulations are posted on the aeronautical charts is critical in an effort to inform pilots of the overflight restriction zones. Current aeronautical charts

incorrectly list the MBNMS overflight restriction zones as being a 'recommendation' rather than a 'requirement.'

Activity 2.2: Identify Areas of Concern for Low Overflights and Continue Monitoring of Sensitive Areas

MBNMS will evaluate key geographical areas to understand priority concern locations and levels of disturbance to assist in targeting outreach and enforcement. The MBNMS will work with local film commissions to identify desirable sites for the film industry and monitor for potential impacts. MBNMS will also work with researchers and monitors in the field to compile data, regarding observations of low flying aircraft and associated disturbance. The MBNMS will also work with the Gulf of the Farallones National Marine Sanctuary (GFNMS) and other partners to monitor and evaluate key sensitive areas within the overflight zones as well as sensitive areas, such as Devil's Slide on the San Mateo Coast, outside of the existing restriction zone.

Activity 2.3: Continue Outreach to Pilots

The MBNMS has conducted outreach to various pilot associations, by speaking to flying clubs and pilot associations. The MBNMS should increase outreach efforts to encompass a larger number of pilots on a regular basis and conduct workshops on wildlife viewing etiquette to pilots. The MBNMS should also develop an educational poster for distribution to municipal airports, pilot training schools and flight schools, websites, aviation clubs, and other appropriate venues as well as develop and distribute a brochure identifying impacts of low flying aircraft. The MBNMS should consider other outreach options such as submitting articles to aviation magazines (e.g., *In Flight*)

Activity 2.4: Conduct Outreach with Film Commissions

Film companies are generally not aware of MBNMS regulations pertaining to overflight restriction zones. Outreach should be conducted to local filmmaking commissions to make them aware of the sensitive MBNMS resources, and the appropriate optimal seasonal operation "windows" for certain highly sensitive areas. In addition to the Overflight Restriction Zones information, general outreach on other land or boat-based filming activities should be conducted.

Activity 2.5: Provide Permit Guidance to Aircraft Operators

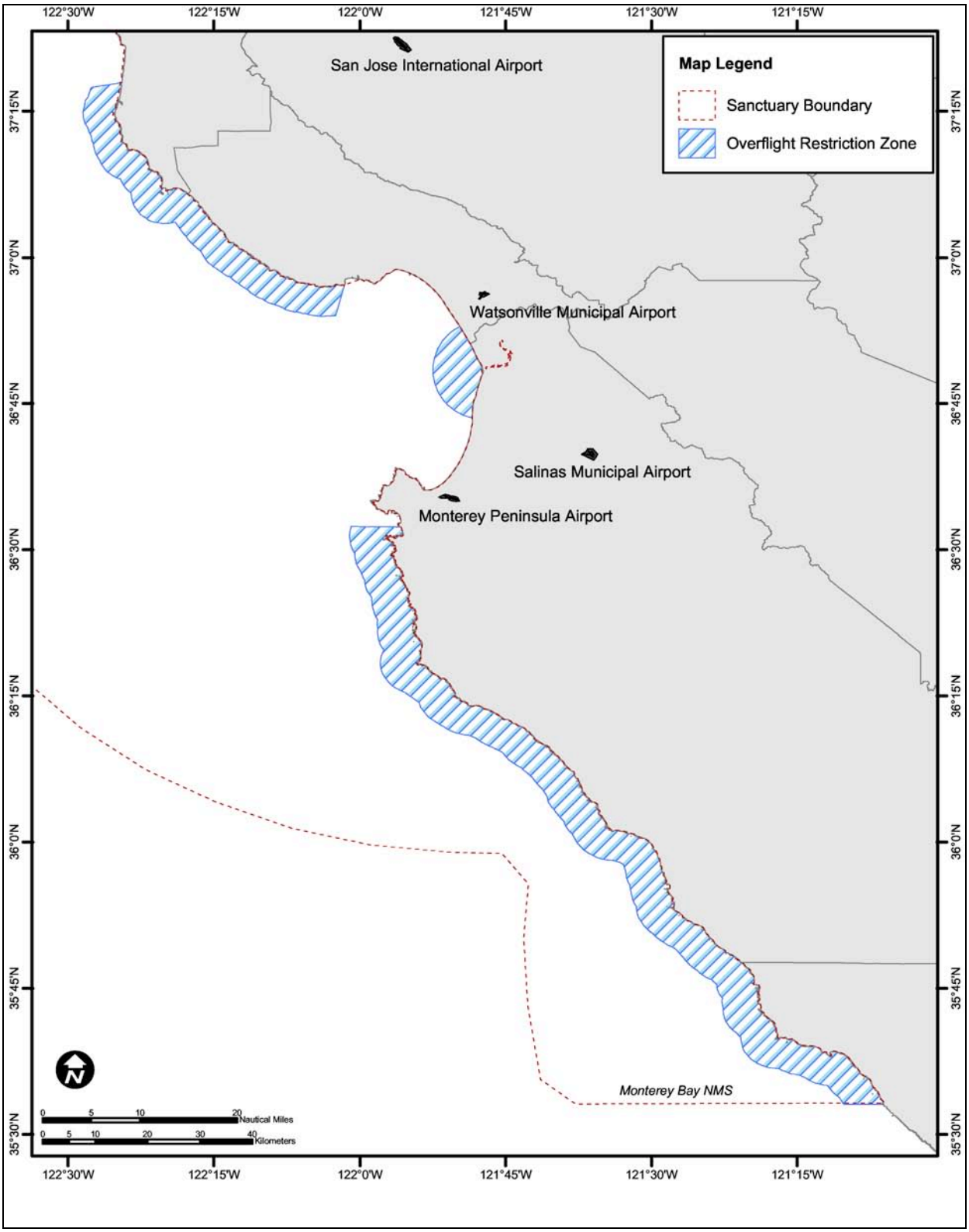
The MBNMS will work with partners to coordinate and develop seasonal restrictions with other regulatory agencies to provide a useful guide for filming companies and conduct outreach for the owners of the few private airstrips along the Big Sur coast.

Activity 2.6: Assess Disturbance from Remote Controlled Airplanes

The operation of remote controlled airplanes operating in areas of high seabird and shorebird concentration may cause flushing events. The MBNMS will investigate the frequency and effects of this activity, and where appropriate, work with local municipalities to ensure that the activity is not occurring in highly sensitive habitat areas. Signage and outreach should be in place to educate the hobbyists on potential impacts their actions may cause.

Activity 2.7: Assess Disturbance from Parasails and Hang Gliders
The MBNMS will work with partners as well as aid and encourage other agencies to evaluate the potential for parasails and hangliders to disturb snowy plovers.

Figure MMST 1. Existing MBNMS Overflight Restriction Zones



Strategy MMST-3: Mitigate Impacts From Shore-Based Activities

There is a need to evaluate and possibly further address and reduce shore-based disturbance. Disturbance is known to cause seabirds, shorebirds, and pinnipeds to exhibit avoidance responses resultant from the interactions. MBNMS should conduct an assessment of the target audience in order to develop the best tools and materials to reach them.

Activity 3.1: Develop Wildlife Viewing Guidelines Addressing Shore-Based Activities

Identify, modify or draft appropriate guidelines for shore-based interactions with species of concern. This will complement the efforts listed in Strategy MMST-1.

Activity 3.2: Support Partners and Organization Conducting Outreach Activities

The MBNMS will continue to support organizations that conduct activities that reduce harassment to wildlife. The Friends of the Elephant Seal (FES), BayNet, or similar programs should be strengthened to ensure that volunteers continue to be available to interact with the public. Continue to collaborate with state parks and other sites that have intense visitor usage to identify strategies to reduce wildlife disturbance, and facilitate increased signage at state parks to complement docent programs. The MBNMS should facilitate a column in a local newspaper that would outline various educational components for the public and offer seasonal information on various species, viewing protocols, pollution reduction tips, or other items of interest.

Activity 3.3: Continue Coordination with US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) to Address Disturbance from Fireworks

Fireworks displays over the MBNMS have been traditionally conducted as part of national and community celebrations and foster public use and enjoyment of the marine environment. The MBNMS began consultation with the USFWS and the NMFS in 2003 as required by the ESA, MBTA, and the MMPA. This process will outline permit conditions and maximum number of fireworks allowed at various locations, including areas where fireworks will not be allowed. MBNMS will continue to coordinate with appropriate agencies as permit applications are submitted.

Strategy MMST-4: Mitigate Impacts From Marine Debris

Levels of debris in both the ocean and at the land-sea interface are of growing concern. Various types of debris are known to have adverse effects on marine species. Plastics in the marine environment never fully degrade and recent studies show plastic is consumed by organisms at all levels of the marine food web. Dichlorodiphenyltrichloroethane (DDT) and other hydrophobic compounds are known to adhere to plastics. Ingestion and entanglement are one of the many problems associated with marine debris, which may eventually lead to death for many organisms. Priority types of marine debris include balloons, abandoned/discarded fishing gear, plastics and styrofoam, and consumer goods including 6-pack rings, plastic shopping bags, etc. The MBNMS should conduct an assessment of the target audience in order to develop the best tools and materials to reach them.

Activity 4.1: Coordinate with the California Coastal Commission (CCC) to Conduct Education and Outreach Programs to Illustrate the Impact of Marine Debris

The MBNMS will work with the CCC to determine how to best make information available to the general public for land-based education and all boaters—including the military, cruise ships, large commercial vessels, and fishermen—for ocean-based education. The MBNMS will work with partners to engage the media in wildlife issues adversely affected by debris, such as entangled animals, and identify areas where pelagic plastics accumulate in order to increase awareness of the connection to both land-based and offshore actions. The MBNMS will also work with the CCC to develop public service announcements that educate the public on the concerns and solutions to the issue. This public awareness strategy should fully integrate an educational component about marine debris into the campaign.

Activity 4.2: Expand GIS Database to Monitor Marine Debris in MBNMS

The MBNMS will work with the Ocean Conservancy and the CCC to expand the database to track and characterize the type, location and amounts of marine debris collected through coastal cleanup efforts. Monitoring results will be integrated with other wildlife disturbance monitoring data into the Sanctuary Integrated Monitoring Network (SIMoN).

Activity 4.3: Increase Education Regarding Impacts of Lost Balloons

Balloons are often found at sea and have deleterious effects on various forms of marine species. Develop informational tags to be placed on commercial helium tanks and balloons to illustrate the hazards of releasing balloons into the environment. Information should also be provided to area businesses.

Activity 4.4: Develop Notification and Recovery Program for Abandoned Gear

Implement a notification and recovery program to collect fishing gear, similar to the program created in the Northwest Hawaiian Islands where derelict fishing gear is recovered. The USCG will retrieve abandoned fishing gear if it is deemed to be a hazard to navigation. However, gear that is not a navigation hazard is not recovered. The MBNMS should target educational efforts to fishermen and other users regarding the adverse effects of lost gear and debris. This activity will be valuable in combating this form of debris and encourage the USCG to, where possible, recover derelict fishing gear or assist in communication with others who could accomplish recovery. The MBNMS will work with partners to identify and enlist a network of trained partner organizations or individuals who are able to retrieve abandoned gear, after it is determined that the gear is in fact abandoned, while developing a notification system that the USCG, fishermen, researchers and other boaters can use to notify the recovery network of the locations of abandoned gear. The MBNMS should evaluate the feasibility of developing a shore-side reward program for removal of gear that becomes washed up on beaches. An education component would be necessary to alert beachgoers of the recovery program.

Activity 4.5: Coordinate with Municipalities to Reduce Debris Accumulation

Local consumers, businesses, tourists, and residents should be made aware of the hazards associated with marine debris. Education efforts, in general, have been found to be more effective at the source of the problem than end-based solutions. The MBNMS will identify the priority debris types to help formulate an educational approach to the issue, and conduct educational efforts with municipalities to install storm shields or catchment basins over storm

drains in order to reduce the amount of post consumer garbage that enters the ocean during times of dry weather. The MBNMS will also collaborate with municipalities, cities, and students to paint stencils on storm drains, alerting others to this problem. The MBNMS will also work to support volunteer-based creek cleanups conducted in advance of wet weather in order to reduce the amount of plastic and trash contribution to the MBNMS.

Strategy MMST-5: Evaluate Impacts From Commercial Harvest

Commercial harvesting of certain fish and kelp resources may result in varied types of disturbance to wildlife. The use of nighttime lighting in the commercial squid fishery may disturb certain seabirds such as pelicans, petrels, and auklets as well as sea otters by disrupting natural behavior. Kelp harvesting may involve potential disturbance of various fauna associated with the kelp ecosystem. Certain species such as sea otters could be prone to harassment by harvesting operations in the kelp beds. Certain methods of aquaculture can result in harm or mortality to seabirds. Pens used for rearing juvenile species can trap seabirds attracted to the contents, thereby resulting in injury or death.

Activity 5.1: Evaluate Levels of Disturbance and Identify Solutions

The MBNMS should conduct research activities to evaluate disturbance from kelp harvesting, lighting from squid fishing vessels, and aquaculture pens and gear entanglement. Potential solutions may include future, further evaluation of shielding or re-directing the light sources in some fashion to ensure current designs are adequate, and modifications to fishing gear and aquaculture pens to reduce bycatch and entanglement. The MBNMS will work with partners to determine if aquaculture pens could be redesigned to reduce entanglement of seabirds. The MBNMS will also work with the National Marine Fisheries Service (NMFS) to examine the scope of fishermen unintentionally snagging their gear on whales when both are focused on feeding grounds in the MBNMS. The MBNMS will invite fishermen to participate in training and workshops that will be conducted to reduce harassment or disturbance to marine species.

Activity 5.2: Coordinate with NOAA Fisheries to Reduce Bycatch of Marine Mammals, Sea Turtles and Birds

The MBNMS will work with NOAA Fisheries to reduce bycatch of marine mammals, turtles and bird associated with fishing activities in the MBNMS. Marine species are known to be prone to hooking and entanglement in fishing lines, gillnets, buoy anchor lines, discarded fishing gear and other equipment, which can lead to serious injuries or death.

Strategy MMST-6: Assess Impacts From Acoustics

Noise levels in the marine environment have been increasing from increased shipping traffic, sonar technologies, loudspeakers on boats traveling by or stopping close to nearshore rookeries, and research projects. The effects of noise on marine mammals, seabirds, and turtles is not entirely known, though active sonar has been conclusively linked to the deaths of whales in other areas. Issues of concern include the effects of acoustics on marine mammals by ships, the military, research, or other influences. NOAA has conducted and continues to conduct research regarding the effects of sound disturbance on marine mammals, however additional MBNMS-specific research and monitoring may be necessary.

Activity 6.1: Expand Research and Monitoring of Acoustics in MBNMS

Strategies to address the above issue include gathering more information and data on the effects of sound in the marine environment. MBNMS will work with partners to encourage passive acoustic monitoring in order to identify and quantify sources of anthropogenic noise in air and underwater and continue to be apprised of survey and monitoring activities that are evaluating the effects of sound.

Activity 6.2: Continue Evaluation of Individual Projects with Potential Acoustic Disturbance

Potential effects of acoustic disturbance are not entirely known for marine species, however there is a correlation between acoustics and marine mammal stranding events in other areas of the world. MBNMS will continue evaluating individual proposals on a case-by-case basis to determine impacts of proposed projects, and make management recommendations. The MBNMS should work with NOAA Fisheries and other partners to determine acceptable sound levels in the different frequency ranges affecting wildlife.

Strategy MMST-7: Reduce Sea Turtle Disturbance

The MBNMS should work with those involved in regional sea turtle research activities to determine primary threats, known disturbance activities, and strategies to reduce disturbance. Sea turtles are difficult to see from the water and are vulnerable to boat collisions and propeller strikes. Other known threats to turtles include the ingestion of garbage and marine debris such as plastic bags, styrofoam, balloons, and other plastics. These items can cause interference in metabolism or gut function as well being responsible for absorption of toxic byproducts. Contact with discharged oil can harm sea turtles by adversely affecting respiration, blood chemistry, and salt gland function. Ingestion of tar balls is also of concern.

Activity 7.1: Assess Levels of Sea Turtle Disturbance in MBNMS

Strategies to address the disturbance of sea turtles in the MBNMS include working with NOAA Fisheries on further evaluation of sea turtle tracking projects, evaluation of stranding data, and developing a program to identify common sea turtle disturbance or harassment activities.

Activity 7.2: Address Sea Turtle Disturbance in Wildlife Viewing Guidelines.

Strategy MMST-8: Maintain and Enhance Enforcement

The MBNMS has one dedicated NOAA Enforcement Officer to respond to potential violations of MBNMS regulations. The MBNMS relies heavily on collaborations with other cross-deputized partners such as the California Department of Fish and Game (CDFG) and the California Department of Parks and Recreation (CDPR) to assist with MBNMS enforcement. The MBNMS also funds a half-time law enforcement officer working in the Cambria area to assist with enforcement issues in Cambria, San Simeon, and the Big Sur region. Enforcement patrols by the CDFG and the CDPR for the year 2000 - 2001 were tabulated at 2,444 'patrol hours.' Each hour of enforcement patrol effort reflects the presence of an enforcement unit somewhere in the MBNMS.

Activity 8.1: Strengthen Enforcement of MBNMS Regulations

It is critical to strengthen the availability of surveillance and enforcement capabilities, and to increase the visibility of MBNMS enforcement to enhance educational efforts. MBNMS will identify additional enforcement needs and increase MBNMS enforcement staff as necessary to address issues such as disturbance of wildlife by vessels and aircraft and discharge of marine debris. MBNMS Enforcement personnel will also assist with development and distribution of wildlife viewing guidelines and interpretive efforts such as the Team OCEAN kayak program. MBNMS will also pursue partnerships with other state and federal agencies to further protect MBNMS resources and improve inter-agency coordination on enforcement to leverage field efforts, including MBNMS, CDFG, State Parks, and local police.

Activity 8.2: Continue Outreach to Increase Knowledge of MBNMS Regulations and Contact Information

There is some confusion among members of the public as to what the MBNMS regulations are and who to contact in the event of a violation. The MBNMS will work with other regulatory agencies to develop and disseminate readily understandable information about complex regulations and multiple jurisdictions to the public and agencies. MBNMS will develop coordinated training with enforcement personnel and docents on how to effectively report MBNMS violations. Establish and promote a call-in system and infrastructure for the public to report incidents for enforcement follow-up.

Activity 8.3: Increase Use of Summary Settlement Process

The MBNMS will finalize and use a summary settlement process, which would allow tickets or fines to be levied on-scene to offenders.

Activity 8.4: Increase Coordination Between Education and Enforcement Programs

The MBNMS will continue to coordinate the MBNMS education and enforcement programs in order to address wildlife disturbance issues. The MBNMS will design and implement a formal system to facilitate referrals from docents or programs such as Team OCEAN to the enforcement program.

Action Plan Partners: California Department of Fish and Game, Department of Motor Vehicles, Harbors, US Fish and Wildlife, Save Our Shores, Defenders of Wildlife, Friends of the Sea Otter, pilot organizations, training schools, flight clubs, publications (*Inflyer, PacFlyer, AOPA*), airports, recruiting of volunteer pilots, Point Reyes Bird Observatory, California Coastal National Monument, research institutes, County and State Film Commissions, Visitor and Tourism Bureaus, NOAA Fisheries, State Parks, BayNet, docent outreach, non-profit groups, Ocean Conservancy, Monterey Bay Aquarium, Friends of the Elephant Seal, American Plastics Council, California Coastal Commission, Surfrider Foundation, San Francisco State University, Stanford, Naval Postgraduate School, Military, police, Team OCEAN

Table MMST 1: Measuring Performance of the Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Desired Outcome(s) For This Action Plan:	
Reduce wildlife disturbance by strengthening and expanding the Team OCEAN education and enforcement efforts.	
Performance Measures	**Explanation**
By 2010, reduce by 50% the number of incidents of disturbance observed by Team OCEAN education program.	The number of contacts and disturbance observations by Team OCEAN will also be tracked seasonally and annually. Variability in the number of contacts should be correlated to the number of personnel in the field since implementation of the action plans will result in expanding the number of docents and volunteers as well as the enforcement staff. Increasing number of contacts may not be an indication of increased instances of wildlife disturbance.

Table MMST 2: Estimated Timelines for the Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Marine Mammal Seabird and Turtle Disturbance Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy MMST-1: Mitigate Impacts From Marine Vessels					
Strategy MMST-2: Mitigate Impacts From Low Flying Aircraft					
Strategy MMST-3: Mitigate Impacts From Shore Based Activities					
Strategy MMST-4: Mitigate Impacts From Marine Debris					
Strategy MMST-5: Evaluate Impacts From Commercial Harvest					
Strategy MMST-6: Assess Impacts From Acoustics					
Strategy MMST-7: Reduce Sea Turtle Disturbance					
Strategy MMST-8: Maintain and Enhance Enforcement					

Legend	
Year Beginning/ Ending : ●——●	Major Level of Implementation: ———
Ongoing Strategy : ●——▶	Minor Level of Implementation: .....

Table MMST 3: Estimated Costs for the Marine Mammal, Seabird, and Turtle Disturbance Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy MMST-1: Mitigate Impacts From Marine Vessels	$174	$123	$112	$108	$108
Strategy MMST-2: Mitigate Impacts From Low Flying Aircraft	$181	$95	$32	$17	$17
Strategy MMST-3: Mitigate Impacts From Shore Based Activities	$29	$29	$17	$17	$17
Strategy MMST-4: Mitigate Impacts From Marine Debris	$119	$61	$38	$33	$33
Strategy MMST-5: Evaluate Impacts From Commercial Harvest	$93.5	$93.5	$93.5	$93.5	$93.5
Strategy MMST-6: Assess Impacts From Acoustics	$550	$45	$28	$24	$24
Strategy MMST-7: Reduce Sea Turtle Disturbance	$35	$35	$32	$32	$32
Strategy MMST-8: Maintain and Enhance Enforcement	$257	$257	$257	$257	$293
Total Estimated Annual Cost	*$1,438.5*	*$738.5*	*$609.5*	*$581.5*	*$617.5*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Motorized Personal Watercraft Action Plan

Goal

To minimize disturbance of marine wildlife by motorized personal watercraft (MPWC), minimize user conflicts between MPWC operators and other recreationalists, and provide opportunities for MPWC use within the Monterey Bay National Marine Sanctuary (MBNMS).

Introduction

Motorized Personal Watercraft (MPWC) are small, fast, and highly maneuverable craft that possess unconventionally high thrust capability and horsepower relative to their size and weight. This characteristic enables them to make sharp turns at high speeds and alter direction rapidly, while maintaining controlled stability. Their small size, shallow draft, instant thrust, and "quick reflex" enable them to operate closer to shore and in areas that would commonly pose a hazard to conventional craft operating at comparable speeds. Many can be launched across a beach area, without the need for a launch ramp. Most MPWC are designed to shed water, enabling an operator to roll or swamp the vessel without serious complications or interruption of vessel performance. The ability to shunt water from the load carrying area exempts applicable MPWC from United States Coast Guard (USCG) safety rating standards for small boats. MPWC are often designed to accommodate sudden separation and quick remount by a rider. MPWC are not commonly equipped for night operation and have limited instrumentation and storage space compared to conventional vessels. MPWC propelled by a directional water jet pump do not commonly have a rudder and must attain a minimum speed threshold to achieve optimal maneuverability. Most models have no steerage when the jet is idle.

Assessments of MPWC impacts indicate that unrestricted access to all reaches of the MBNMS by such craft would pose an unacceptable threat to wildlife and other ocean users. MPWC commonly accelerate and decelerate repeatedly and unpredictably, and travel at rapid speeds directly toward shore, while motorboats generally slow down as they approach shore. Accordingly, disturbance impacts associated with MPWC tend to be locally concentrated, producing effects that are more geographically limited yet potentially more severe than motorboat use, due to repeated disruptions and an accumulation of impacts in a shorter period of time. To prevent the disturbance of wildlife and other nearshore users, most MPWC have been restricted in protected marine areas adjacent to, or overlapping the MBNMS, e.g., the Gulf of the Farallones National Marine Sanctuary (GFNMS) and nearshore areas of the Golden Gate National Recreation Area (GGNRA), Marin County, California State Parks, and the City of Santa Cruz. Current MBNMS management of MPWC is consistent with actions taken in these jurisdictions.

The majority of MPWC currently operated within the MBNMS are compact water jet-propelled craft that shed water from the passenger spaces. Larger size models are preferred in the high-energy ocean environment for increased power, range, and towing ability. Popular uses are operation within the surf zone, weaving in and out of wave lines, launching off the crest of waves and wakes, and towing surfers into large and/or remote wave breaks. MPWC are often operated in pairs or larger groups for camaraderie and improved safety. Use of MPWC to tow surfers into large waves at Mavericks, a surf break off Pillar Point in San Mateo County, is a

relatively new technique in surfing, allowing surfers to catch waves previously considered too large to catch. Use of MPWC for this purpose has increased dramatically during the past few years at Mavericks. Tow-in surfing activity has been increasing at many traditional surfing locations in the MBNMS, regardless of surf conditions. On days with moderate or low surf, MPWC provide ready access and improved flexibility for positioning surfers on wave breaks. On high surf days, MPWC provide access to areas normally considered too dangerous by paddle surfers. The MBNMS has received complaints by surfers, beachgoers, and coastal residents that the use of MPWC in traditional surfing areas has produced conflicts with other ocean users and caused disturbance of wildlife. During the designation of the MBNMS, the operation of MPWC in nearshore areas was identified as an activity that should be prohibited to avoid such impacts.

Proposed New Definition: *Motorized personal watercraft (MPWC)* means (1) any vessel, propelled by machinery, that is designed to be operated by standing, sitting, or kneeling on, astride, or behind the vessel, in contrast to the conventional manner, where the operator stands or sits inside the vessel; or (2) any vessel less than 20 feet in length overall as manufactured and propelled by machinery and that has been exempted from compliance with the U.S. Coast Guard's Maximum Capacities Marking for Load Capacity regulation found at 33 CFR Parts 181 and 183 (except submarines); or (3) any other vessel that is less than 20 feet in length overall as manufactured, and is propelled by a water jet pump or drive.

Strategy MPWC-1: Maintain Motorized Personal Watercraft Zones

The MBNMS has employed a zoning approach to MPWC management for ten years (since 1992) to prevent disturbance of marine wildlife, nearshore habitats, and other coastal users by MPWC. Four existing zones were sited based upon the location of public launch facilities, traditional areas of MPWC use, and local wildlife and marine recreation patterns. Zone boundaries are marked by a total of twenty-one yellow MBNMS can buoys and four USCG navigation aids. The markers are positioned along the perimeter of each zone; however, they present added navigation hazards to mariners. Overall, the zones have received little use by MPWC operators since many ride three-plus-person-capacity craft that are not restricted to the zones. If the definition of MPWC is changed to include three-plus-person-capacity craft, zone use patterns will likely change, though specific impacts by zone are unknown.

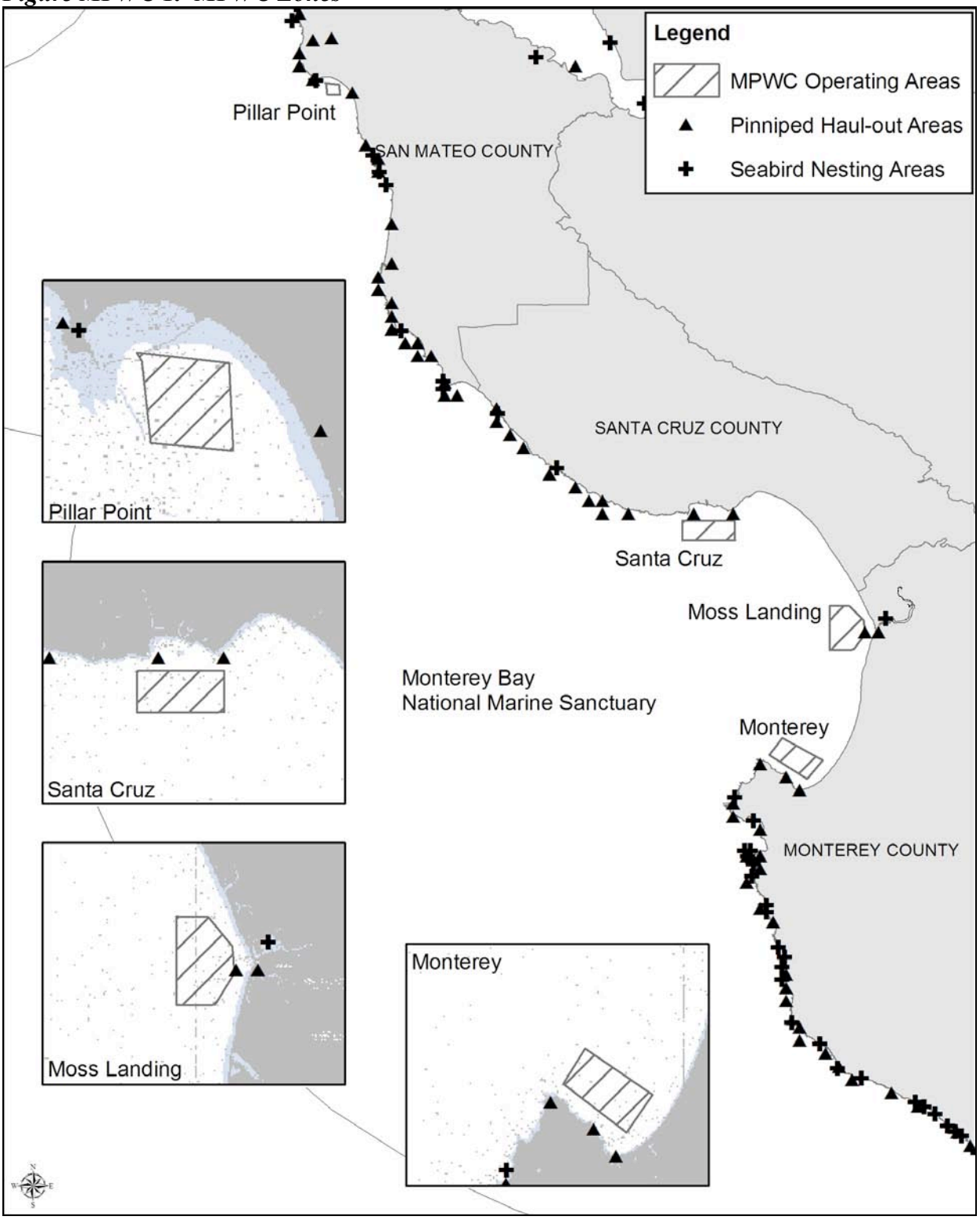
Activity 1.1: Improve Buoy Marking System

The visibility of the zone marker buoys will be enhanced by adding polyvinyl chloride (PVC) piping to extend buoy height above the waterline and to mark buoys to identify their purpose. MBNMS will incorporate prominent USCG navigational aids into boundary marking schemes whenever possible.

Activity 1.2: Implement Ongoing Buoy Maintenance Program To Assure Buoys Are On Station

The MBNMS will contract with a private vendor to conduct regular maintenance and any necessary modifications to the buoy system to help assure that buoys remain on station, minimize safety hazards, and correctly mark the prescribed zones.

Figure MPWC 1. MPWC Zones



Strategy MPWC-2: Consider Zone Restriction Exceptions

A change in the definition of MPWCs would limit MPWC training by public safety agencies as well as tow-in surfing activities (a sport that has evolved and expanded since MBNMS designation). Administrative policies and conditions must be developed to authorize any controlled operation of MPWC in areas of the MBNMS outside established operating zones. At least eight state and local public safety agencies currently operate MPWC for purposes of surf zone rescue within the MBNMS. In order to use MPWC for response in critical areas, local response agencies must train their MPWC operators to be familiar with the nearshore areas and ocean dynamics in which they may be called to operate. Since many response areas lie outside of MBNMS MPWC zones, public safety personnel need an administrative mechanism that facilitates familiarization and proficiency training.

The nearshore area immediately southwest of Pillar Point, California, (popularly named "Mavericks") is known world-wide as a unique surfing venue where waves reaching a height of fifty to sixty feet occur periodically each year. It is the only site of its kind in the continental United States. Since the Mavericks area is outside of MBNMS MPWC operating zones, special administrative provisions must be investigated and regulatory modifications may be necessary to allow MPWCs to tow in surfers at this location.

Activity 2.1: Identify and Implement Official Protocols For Training of Public Safety Personnel

MBNMS staff will consult with public safety agencies assigned jurisdictional authority within the MBNMS area to develop MPWC training protocols for their emergency response personnel. At a minimum, the protocols will limit training to official government public safety personnel assigned to local units exercising jurisdictional authority within the MBNMS. Training shall not occur in sensitive habitat areas or disturb marine wildlife or interfere with other ocean users. MBNMS will also coordinate with the authorized public safety agencies to notify the MBNMS in advance of ocean training sessions. Trainees shall use only agency authorized equipment that is marked for ready identification by the public to avoid confusion about potential unauthorized use of an MPWC in the MBNMS.

Activity 2.2: Permit or Authorization for Training of Public Safety Personnel

The National Oceanic and Atmospheric Administration (NOAA) will authorize or permit public safety agencies operating MPWC within the MBNMS to conduct MPWC training for locally assigned personnel.

Activity 2.3: Consider Special Use Permit program for Individuals to Conduct Tow-in Surfing Activities at Mavericks (Pillar Point)

The GFNMS, in coordination with MBNMS, may consider a Special Use Permit program for the limited permitting of individuals to conduct MPWC tow-in operations at Mavericks during very high surf periods. If a permit is possible, the activity must not result in any short-term adverse impact and will therefore be subject to certain conditions and restrictions in entry, timing, sea conditions, location, access routes, and training. MPWC use is not an activity identified as eligible for Special Use Permit by the National Marine Sanctuary Program (NMSP) and therefore would require regulatory modification for implementation.

Activity 2.4: Permit Program for Commercially Sponsored Tow-In Surfing Competitions at Mavericks (Pillar Point)

The GFNMS, in coordination with MBNMS, will establish guidelines for the limited permitting of individuals to conduct MPWC tow-in operations at Mavericks as part of specified big-wave competition events if a Special Use Permit is issued. The activity must not result in any short-term adverse impact and will therefore be subject to certain conditions and restrictions.

Strategy MPWC-3: Conduct Educational Outreach to MPWC Community

In order to inform users about use of the zones, eight large enamel interpretive signs were designed, produced, and installed at launch ramps in the four harbors within the MBNMS. The signs are customized to each harbor location with text of MBNMS MPWC regulations superimposed on a map depicting the nearest operating zone and access route. The MBNMS also designed and published several thousand brochures to provide personal instructions for using the zones and complying with MBNMS regulations. The brochures were distributed to harbor offices and some retail shops.

Activity 3.1: Update and Maintain Interpretive Materials (e.g., signs, brochures, videos)

The MBNMS will amend the primary outreach brochure to describe the zoning system and how to use the buoy system to remain within the authorized zones. Upon adoption of changes in regulations, MBNMS will create new MPWC instructional signs with MPWC regulations and information, and proper riding etiquette.

Activity 3.2: Update Interpretive Methods (e.g., presentations, dock walkers, sign placement, information distribution)

The MBNMS will conduct a needs assessment survey to determine the most effective method(s) of contacting MPWC users and review locations of instructional signs to ensure they are in prominent locations at launch ramps. Based on the results of the needs assessment, MBNMS will conduct targeted outreach to MPWC user groups, clubs, retailers, renters and repairers, and coordinate with volunteer organizations and harbormasters to provide interpretive information to MPWC operators at launch ramps. The MBNMS will also coordinate with the state to add the MBNMS MPWC regulations to the California Department of Boating and Waterways (CDBW) website.

Activity 3.3: Coordinate with GFNMS to Maintain the MBNMS NOAA Weather Kiosk at Pillar Point Harbor Launch Ramp for Use By MPWC Operators, Surfers, Boaters, Fishermen, etc.

A weather kiosk is placed at a prominent location for ready access by permitted MPWC operators (if Activity 2.3 permit program is implemented) to help determine if appropriate sea conditions exist for MPWC operation at Mavericks. The weather kiosk includes a touch screen computer system linked to real-time weather and oceanographic information from the National Weather Service and National Data Buoy Center.

Activity 3.4: Install A Link on the Front Page of the MBNMS and the GFNMS Website for Instant Access to Real-Time Weather and Oceanographic Data from the National Weather Service and National Data Buoy Center (Contingent on MPWC Permitting Program)

A link to the weather information would provide ready access by permitted MPWC tow-in operators to information that will help determine if appropriate sea conditions exist for MPWC operation at Mavericks if it is to be permitted. It should also provide useful information to other MBNMS users and be made available as part of the suite of Sanctuary Integrated Monitoring Network (SIMoN) real-time monitoring tools.

Strategy MPWC-4: Enhance Enforcement Efforts

Oversight and management of MPWC zones requires dedicated enforcement surveillance and rapid response to suspected violations. Harbor patrols and other harbor-based enforcement agencies are uniquely situated to perform this mission, but would require training and financial support. Harbor-based peace officers are familiar with MPWC use patterns in their areas, often receive initial complaint calls from the public, have immediate access to MPWC zones, and are most familiar with harbor areas and adjacent waters.

Activity 4.1: Expand Deputization of Local Peace Officers

The MBNMS will develop a plan for utilizing harbor police and other ocean-based law enforcement units to assist the MBNMS in MPWC enforcement. The purpose for expanded deputization will be to increase surveillance patrols and enforcement personnel to monitor MPWC zones and harbor launch points. The MBNMS should consider creating an enforcement task force of marine enforcement agencies to coordinate support of MBNMS enforcement goals.

Activity 4.2: Commit Sufficient Enforcement Funding to Support Deputization Agreements

NOAA should provide adequate funding to fully support *Activity 4.1* above and shall seek funding from both NOAA and non-NOAA sources (e.g., CDBW).

Activity 4.3: Permit Enforcement at Mavericks Using Permit Fee Funding

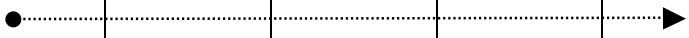
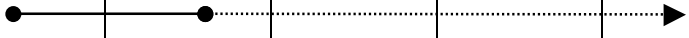
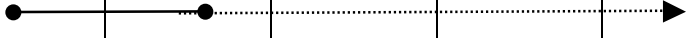
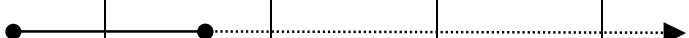
Fees collected for Special Use Permits (if authorized for use at Mavericks) will be used to pay for additional monitoring and enforcement of MPWC activity at Half Moon Bay and Pillar Point.

Action Plan Partners: United States Coast Guard; California Department of Parks and Recreation; Cities of Marina, Santa Cruz, Capitola, Half Moon Bay, and Monterey; Pillar Point Harbor; Pacific Grove Ocean Rescue; Surfrider Foundation; Personal Watercraft Industry Association; American Watercraft Association; California Department of Boating and Waterways; NOAA Office of Law Enforcement; California Department of Fish and Game; California Highway Patrol; Harbor Police; Sheriff Offices; Police Departments

Table MPWC.1: Measuring Performance of the Motorized Personal Watercraft Action Plan

Desired Outcome(s) For This Action Plan:	
Minimize disturbance of marine wildlife by MPWCs, minimize user conflicts and provide opportunities for MPWC use within the Sanctuary through education and enforcement of MPWC zones.	
Performance Measures	**Explanation**
By 2010, no observed disturbance of wildlife as a result of MPWC operation.	MBNMS will track the number of reports of wildlife disturbance due to MPWC throughout the MBNMS. This will be obtained from enforcement reports, reports to CDFG, harbormasters, and the USCG. These reports must distinguish MPWC caused disturbance from other types of disturbance discussed in the Marine Mammal, Seabird, and Turtle Disturbance Action Plan. Observed disturbances of wildlife will vary with the level of enforcement, observers, and reporting.

Table MPWC.2: Estimated Timelines for the Motorized Personal Watercraft Action Plan

Marine Personal Watercraft Action Plan	**YR 1**	**YR 2**	**YR 3**	**YR 4**	**YR 5**
Strategy MPWC-1: Maintain Motorized Personal Watercraft Zones					
Strategy MPWC-2: Consider Zone Restriction Exceptions					
Strategy MPWC-3: Conduct Educational Outreach to MPWC Community					
Strategy MPWC-4: Enhance Enforcement Efforts					

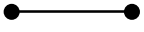
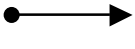
Legend	
Year Beginning/ Ending : 	Major Level of Implementation:
Ongoing Strategy : 	Minor Level of Implementation:

Table MPWC.3: Estimated Costs for the Motorized Personal Watercraft Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy MPWC-1: Maintain Motorized Personal Watercraft Zones	$53	$33	$33	$33	$33
Strategy MPWC-2: Consider Zone Restriction Exceptions	$35	$25	$0	$0	$0
Strategy MPWC-3: Conduct Educational Outreach to MPWC Community	$81	$46	$15.5	$15.5	$8
Strategy MPWC-4: Enhance Enforcement Efforts	$161	$111	$111	$111	$111
Total Estimated Annual Cost	*$330*	*$215*	*$159.5*	*$159.5*	*$152*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Tidepool Protection Action Plan

Goal

Protect tidepool habitat and resources from impacts associated with visitation and harvest.

Figure TP-1: Students Tidepooling with MBNMS Staff

Background

Tidepools and other components of rocky shores represent a species-rich habitat that attracts a wide array of visitors and collectors. In addition to the positive aspects of direct exposure to Monterey Bay National Marine Sanctuary (MBNMS) life, comes the potential for various forms of human disturbance. The MBNMS currently lacks an overall strategy to address impacts to tidepools from human disturbance. Although a comprehensive regional analysis of the locations and extent of tidepool impacts is lacking, public concerns have been raised about disturbance to tidepools in many different areas of the MBNMS, including Fitzgerald Marine Reserve, Pigeon Point, Bean Hollow, Santa Cruz, Monterey, Pacific Grove, Pebble Beach, Big Sur and Cambria. Concerns raised in areas of high visitor traffic include trampling of the resources, turnover of rocks, displacement of both living and nonliving resources, and collecting of intertidal species or shells that can provide habitat. Unfortunately, although there is a wealth of knowledge about tidepool life within the MBNMS, there have not previously been studies that focused on evaluating the extent of human impacts at tidepool locations other than Fitzgerald Marine Reserve and Natural Bridges State Beach.

Trampling is defined as when animals are crushed or dislodged or algae are damaged. Disturbance may also occur if animals or substrates are not returned to the same location. Collecting is defined as picking animals out of the intertidal area, an activity conducted by casual individual visitors, school groups, aquaria, biosupply companies and for consumption. The largest and most common organisms are most often collected since they are most easily found. In the MBNMS region, species selectively harvested for consumption commonly include owl limpets, black turban snails, and others. In addition to direct losses from disturbance and collecting, secondary changes may result from changes in distribution, prey availability, and competition. Under heavy use, patches of habitat become more frequently disturbed, allowing less time for recovery.

Another source of visitor impacts to tidepools is the discarding of trash, which can remain for extended periods of time and become wedged in the substrate. Various types of equipment for research, harvesting or recreational purposes, which are installed or left behind, may also raise public concerns. The level of impact from these sources is unknown. In addition to visitor impacts from trampling, substrate displacement and collecting, which will be addressed in this action plan, there are a variety of other types of human activities that can have negative impacts

on tidepools, and rocky shores, including coastal armoring, polluted runoff, landslide disposal, small boat groundings, and behavioral disturbance of marine mammals.

Most tidepool areas of the MBNMS do not have significant monitoring and enforcement, signage or educational outreach strategies to minimize human impacts. In addition, there has not been a regional effort to assess usage and potential impacts and to prioritize sites that need additional attention. This action plan provides a framework to collaborate with agencies and local communities to more thoroughly evaluate the issue and develop guidelines and programs for comprehensive education, enforcement, monitoring and management of the region's tidepools. Strategies involve recommendations for coordination with actions by a range of players in addition to actions that should be undertaken by the MBNMS.

Strategy TP-1: Assess the Problem

The MBNMS participated in the Point Pinos Tidepool Task Force, a citizen-based group established several years ago in response to public concern about degradation of tidepool habitats in Pacific Grove. This group focused on improving public awareness about tidepool conservation and conducting research about the role of human impacts in changes that occur in rocky intertidal communities. In collaboration with the Point Pinos Tidepool Task Force Research Committee, the Monterey Bay MBNMS Foundation is overseeing a contract to evaluate visitor use patterns and resource impacts at Point Pinos. This study is evaluating locations, amounts and types of visitor uses, assessing documents and conducting interviews about historical patterns at the site. It also includes field monitoring of intertidal organisms to evaluate species abundance, distribution patterns, size-frequency and other factors at sites that differ in their levels of visitor use, in an attempt to distinguish visitor impacts from other factors that may influence tidepool life such as oceanographic temperature change.

MBNMS staff is also participating in a similar study of tidepool impacts that is beginning at the Fitzgerald Marine Reserve under the direction of the San Mateo County Parks and Recreation Division. This study will build on initial work conducted by the Reserve to evaluate impacts of visitor use via use of control sites that limit access. At the southern boundary of the MBNMS, staff are conducting initial efforts on both tidepool monitoring and educational outreach.

The MBNMS has also compiled a detailed survey of the research and monitoring programs focused on rocky intertidal habitat within the MBNMS (DeVogelaere et al., 1998). This provides basic information on tidepool resources, and also may serve as an initial estimate of locations of intertidal habitats that are accessible to visitors. Staff also collaborates with the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), a consortium of academic scientists that have been conducting extensive monitoring of rocky intertidal habitats. However, additional information is necessary to fully evaluate the extent of impacts to tidepools.

Activity 1.1: Continue Regional Identification and Prioritization of Tidepool Locations

MBNMS staff will work with partners in continuing the identification of areas subject to existing and potential damage, natural resources, presence of unique species assemblages, and heavily used access points. This activity includes refinement of the Joint Management Plan Review (JMPR) workgroup's geographic matrix characterizing the region's tidepools, drawing on expert and public input, and adding quantitative data where possible. MBNMS will then conduct a

rapid assessment of information in the matrix to provide a groundtruthed survey of identified sites. All information will be integrated into the Sanctuary Integrated Monitoring Network (SIMoN).

Activity 1.2: Identify Types and Extent of Impacts to Tidepools

Assess and prioritize types and extent of impacts including collecting, trampling, and other disturbances from people, drawing primarily on existing studies.

Activity 1.3: Monitor to Understand Natural Versus Human-Caused Changes

Include adequate tidepool sites that are not accessible for use as a control to distinguish impacts; include continuation of PISCO, Long-term Monitoring Program and Experiential Training for Students (LiMPETS), and Fitzgerald projects.

Activity 1.4: Improve Data Collection and Database Coordination Among Tidepool Research and Monitoring Projects

This activity will facilitate data comparisons over time to compare impacted and non-impacted sites.

Activity 1.5: Ensure Researchers Understand Key Priorities and Information Needs of Managers and Improve Packaging and Distribution of Existing Research, and Make It Available to Managers and the Public

Activity 1.6: Compile Historical Knowledge About Key Locations

Include community-based and anecdotal information and analysis of museum specimens. This information can be used to raise public awareness.

Activity 1.7: Conduct an Evaluation of Visitors at Representative Sites

This evaluation should include where they come from, what they are doing at the tidepools, frequency and timing of their visits, and their level of awareness of tidepool etiquette. Include evaluations of pre-visit locations such as the Monterey Bay Aquarium and the Seymour Center.

Activity 1.8: Assess Potential Impacts of Restricted Use Compared to Unrestricted Use

Shifting patterns of use at one site impacts other locations where uses are unrestricted.

Strategy TP-2: Conduct Education and Outreach

MBNMS continues to work with various partners to produce interpretive signage to provide information about tidepools and tidepool etiquette aimed at reducing impacts to heavily visited locations. Completed signs are in place in Pacific Grove, and new ones are underway in San Mateo County and the San Simeon/ Cambria region. To supplement the signage, staff assisted California State Parks in the production of a new video for school groups and teachers that focuses on tidepool etiquette, and will be working on the local distribution of that product.

Activity 2.1: Develop Appropriate Education and Outreach Materials About Tidepool Protection and Etiquette

MBNMS will work with partners to develop education and outreach materials. These materials will target the public, schools, collectors/researchers and culturally diverse groups and include

information about existing regulations and multiple agency jurisdictions, which may be complex and difficult to understand. Ensure visitors understand it is their responsibility to know these regulations.

Activity 2.2: Consider Potential for Hands-on Exhibits or Live Display Tables

MBNMS will coordinate with other partners and agencies to place exhibits at selected tidepool sites or visitor centers, which could reduce the need for hands-on activities in the tidepools themselves.

Activity 2.3: Develop and Distribute Pre-Visit Education and Outreach Materials about Tidepool Etiquette

MBNMS programs will be established at key visitor locations such as aquaria, which often inspire subsequent field visits.

Strategy TP-3: Strengthen Enforcement

The intertidal zone within the MBNMS is governed by a complex array of multijurisdictional laws and regulations. As of 2003, California Fish and Game Code 8500 restricts the taking of mollusks, crustaceans, or other invertebrates for commercial purposes by any person in any tidal area without a valid tidal invertebrate permit. This restriction covers tide flats or other areas between the high tide mark and 1,000 feet beyond the low tidemark. For non-commercial collection, a more complex set of constraints is outlined in Title 14 §29.05 of the California Code of Regulations (CCR). Enforcement of collecting regulations is an ongoing challenge given the limited number of wardens available. In 2003, four California Department of Fish and Game (CDFG) wardens covered the entire MBNMS coastline, with responsibilities for enforcing a wide range of regulations beyond those covering tidepools. Other enforcement resources include Department of Parks and Recreation rangers, city police departments, and the MBNMS's enforcement officer, all of which are stretched thin by an array of duties and geographic needs unrelated to tidepools.

Activity 3.1: Improve Enforcement of Existing Regulations

MBNMS will work with partner agencies to improve enforcement by funding more officers/wardens in the field and increasing patrol hours to devote more attention to tidepool issues.

Activity 3.2: Utilize Enforcement to Focus on Significant Violations

Enforcement for significant violations is required at all hours, particularly to provide coverage for off-peak hours when these significant incidences often occur.

Activity 3.3: Improve Interagency Coordination

MBNMS will work with partners to leverage field efforts and increase coordination between MBNMS, CDFG, State Parks and local police. MBNMS will also investigate methods to provide training to municipal enforcement officers.

Activity 3.4: Define a System of Referrals from Docents to Enforcement Officers

MBNMS will work with partners to define a communication infrastructure needed to quickly contact enforcement officers and develop guidance and coordinated training protocols on when to call in enforcement and how to effectively address issues.

Activity 3.5: Integrate Tidepool Incidents and Awareness into Wildlife Disturbance Call-In Systems

MBNMS will work with partners to develop the infrastructure for a system that allows the public to report incidents for enforcement follow-up. This system would be coordinated with the CalTip system and Save Our Shores (SOS) MBNMS Watch.

Strategy TP-4: Improve Tracking and Evaluation of Collection and Take

Activity 4.1: Develop Information to Estimate Legal and Illegal Recreational and Scientific Take

Activity 4.2: Improve Tracking of Use Under State Collection Permit System and Develop Take Information Using California Department of Fish and Game Citation Data Base

MBNMS will coordinate with CDFG to evaluate the utility of the database as a tracking tool for collection and take from tidepools in MBNMS.

Activity 4.3: Improve Consistency Between Existing Federal, State and Local Data Sources

Facilitate integration and comparison of data (e.g., terminology and categories of invertebrate life used on forms).

Activity 4.4: Improve Tracking of Take and Collection from MBNMS Permit Process

MBNMS will assess take and collection and other associated data available at the permit locations. MBNMS staff will also work with existing and potential permitees to increase compliance and use of the permit process, including when permits are required, reporting needed, nontransferability of permits, etc.

Activity 4.5: Include Information on the Permits Needed from Multiple Agencies on Agency Websites

Strategy TP-5: Consider Limitation on Use in Selected Locations

The Sanctuary itself prohibits the alteration of the seabed without a permit http://montereybay.nos.noaa.gov/resourcepro/prohibitions.html. However, this regulation has generally been applied to tidepool visitation only if rocks are being removed from the site. MBNMS is a partner with other agencies who directly regulate collecting of intertidal organisms in their efforts to prevent adverse impact to the intertidal zone. In certain locations within the Sanctuary, there is an additional layer of regulation imposed by virtue of its state or local designation as a protected area. There is a panoply of these small protected areas within the MBNMS including state beaches, state parks, state ecological reserves, state marine reserves, state fish refuges, and city marine refuges. These designations restrict the take and disturbance of the intertidal zone to varying degrees, but generally afford tidepool habitats and organisms greater protection from both commercial and non-commercial impacts. Some allow the take of

specified plants and invertebrates while others may prohibit both take and disturbance. A comprehensive list of these sites and their associated regulations is available at http://montereybay.nos.noaa.gov/research/techreports/marinezones/. The MBNMS will evaluate alternative management options at locations where education and enforcement are unlikely to be sufficient.

Activity 5.1: Develop Criteria for Determining Limited Use of Tidepools and Rank Sites

MBNMS will coordinate with partners and use information gathered in the Tidepool Evaluation to determine if limitations are necessary at certain sites.

Activity 5.2: Partner with Agencies with Jurisdictions at Identified Sites

MBNMS will work with partners to assess and develop feasible site-specific management alternatives, including consideration of:

A. Reservation systems at key sites, including identification of carrying capacity and setting of caps on allowable numbers of visitors for locations with limited access;
B. Restriction or redirection of coastal access via recommendations to the California Coastal Commission (CCC), State Parks or other agencies, including potential relocation of parking lots and access paths or redirecting visitors or school groups to sites other than tidepools, such as Elkhorn Slough or proximal sandy beaches, and development of education and enforcement at those alternative sites; and
C. Consideration of tidepool state marine reserves in the Marine Life Protection Act (MLPA) process, building on initial evaluations in the workgroup's tidepool geographic matrix that may require temporary closures at selected sites, or roping off particularly sensitive areas within a site.

Strategy TP-6: Identify Implementation Opportunities

Activity 6.1: Increase Multiagency Funding and Joint Staffing to Implement Program

Activity 6.2: Develop Voluntary Contributions

A. Consider developing an Adopt a Tidepool program
B. Consider "parking meter" style donation systems at tidepool locations
C. Generate support from local businesses

Strategy TP-7: Address Other Human Activities

Activity 7.1: Address Other Types of Human Activities

Focus on human activities, which impact tidepools and rocky shores. Consider strategies included in other JMPR action plans.

A. Evaluate impacts of coastal armoring to ensure that armoring such as rip rap does not harm sensitive tidepool locations.
B. Reduce polluted runoff from agricultural lands, urban areas and parking lots onto sensitive tidepool locations.

C. Reduce spills of sewage and oil or discharge of marine debris, which can end up in tidepools.
D. Review oil spill contingency plans to evaluate adequacy of spill clean-up recommendations for rocky intertidal locations, and ensure that the methodology will not do further damage.
E. Reduce small boat groundings, which can crush rocky intertidal life, and develop recovery programs or damage fees to be used for tidepool efforts when damage occurs.
F. Reduce impacts from landslide disposal activities onto sensitive tidepool locations.
G. Reduce visitor harassment of marine mammals, which haul out on or near rocky intertidal locations.

Action Plan Partners: University of California Santa Cruz, Partnership for Interdisciplinary Studies of Coastal Oceans, Long Marine Lab, Monterey Bay Aquarium, Hopkins Marine Station, California Department of Fish and Game, State Parks, trained volunteers and interns, cities, counties, BayNet, Save Our Shores, Fitzgerald, Seymour Center, schools, science camps, visitor centers, local jurisdictions

Table TP 1: Measuring Performance of the Tidepool Protection Plan

Desired Outcome(s) For This Action Plan:	
Increase understanding of impacts to rocky intertidal areas and protect the habitat and resources from impacts associated with visitation, pollution, harvest, or development.	
Performance Measures	**Explanation**
Develop and implement education and enforcement programs at five most "at risk" tidepool locations by 2010.	Evaluation of progress toward protection of the rocky intertidal habitat within the Sanctuary can be evaluated by measuring the number of enforcement and education programs implemented. Incremental evaluation will tabulate the number of education and enforcement programs at high priority and high risk rocky intertidal areas.

Table TP 2: Estimated Timelines for the Tidepool Protection Plan

Tidepool Protection Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy TP-1: Assess the Problem	●			●	●
Strategy TP-2: Conduct Education and Outreach	●			●	▶
Strategy TP-3: Strengthen Enforcement	●		●		▶
Strategy TP-4: Improve Tracking and Evaluation of Collection and Take	●			●	●
Strategy TP-5: Consider Limitation on Use in Selected Locations	●			●	●
Strategy TP-6: Identify Implementation Opportunities	●			●	●
Strategy TP-7: Address Other Human Activities	●			●	●

Legend	
Year Beginning/ Ending : ●——●	Major Level of Implementation: ——
Ongoing Strategy : ●——▶	Minor Level of Implementation: .....

Table TP 3: Estimated Costs for the Tidepool Protection Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy TP-1: Assess the Problem	$137	$49	$128	$17	$112
Strategy TP-2: Conduct Education and Outreach	$163	$105	$67	$47	$43.5
Strategy TP-3: Strengthen Enforcement	$181	$181	$185	$185	$185
Strategy TP-4: Improve Tracking and Evaluation of Collection and Take	$28	$28	$4	$4	$4
Strategy TP-5: Consider Limitation on Use in Selected Locations	$0	$16	$20	$130	$130
Strategy TP-6: Address Other Human Activities	$24	$12	$12	$12	$12
Total Estimated Annual Cost	*$533*	*$391*	*$416*	*$395*	*$486.5*

* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.

Section VIII

Cross-Cutting Action Plans

- **Cross-Cutting Introduction**
- **Administration and Operations**
- **Community Outreach**
- **Ecosystem Monitoring**
- **Maritime Heritage**
- **Northern Management Area Transition Plan**

Cross-Cutting Action Plans

Cordell Bank, Gulf of the Farallones and Monterey Bay National Marine Sanctuaries are located adjacent to one another along a 300-mile stretch of the north-central California coast. All three sanctuaries are managed by the National Marine Sanctuary Program (NMSP), share many of the same resources and issues, and have some overlapping interest and user groups. There are many opportunities for these sites to work cooperatively, share assets, and address resource management issues in a coordinated manner.

The three sanctuaries continue to coordinate on many important resource management issues, such as oil spills and volunteer monitoring. However, each site is, for the most part, managed independently of the others. The three sanctuaries have separate administrative staffs, Sanctuary Advisory Councils, and independent education, research and resource protection programs. As a result, opportunities to maximize collaborations and share resources have not fully been realized.

Goals

The goal of the cross-cutting action plans is to build upon existing coordination efforts and identify some activities that should be jointly implemented so that these three sites can operate as integrated and complementary sites to better protect the Sanctuary resources. This will ensure that scarce program resources are used more efficiently and result in a more consistent and coordinated delivery of programs, products and services to the public. Cross-cutting actions plans were developed to address: administration and operations; northern management area; community outreach; maritime heritage; and ecosystem monitoring. Though the implementation of other activities contained in the site-specific plans may also be effectively coordinated, the NMSP determined that the cross-cutting action plans would be jointly developed and implemented jointly across the three sites.

Implementation Within the Context of a New Regional Structure

NMSP efforts to address certain priority issues in a cross-cutting framework was a first step in a larger effort to begin looking at sanctuary resource management issues in a regional or ecosystem-based context. Since the cross-cutting plans were developed, the NMSP has been slowly moving toward adopting a new regional management structure. This new regional structure establishes four regions, including a West Coast region, which will be led by a Regional Superintendent. The purpose of this new structure is to maximize program integration among the NMSP sites, regions, and national program and to other state and federal programs and partners – across all levels. The regional structure dedicates program leadership and regional staff resources directly towards integrating programs and forging partnerships that supports NOAA's evolving ecosystem-based management approach.

The Regional Superintendent and staff will be based in the region and dedicate their efforts towards addressing priority regional issues and capitalizing on regional opportunities and partnerships. In the case of the JMPR, some of their expertise and responsibilities could include working closely with individual sanctuary staff to coordinate the implementation of certain cross-cutting action plans. For example, regional ecosystem monitoring has emerged as a

NOAA priority. To be effective, this requires the integration of sanctuary monitoring activities not only across the 3 sites in the joint management plan review, but those at partner state and federal agencies and at other marine sanctuaries such as Channel Islands and Olympic Coast. Regional staff could clearly play an important role in helping coordinate and ensure the linkages as the various site or cross-cutting ecosystem monitoring plans are being implemented. Regional staff and resources may also be involved in helping coordinate or implement the community outreach, maritime heritage action plans. However, it may also be appropriate for individual sanctuaries to either share the lead for implementing the cross-cutting action plans or for one site to take the lead. Ultimately, determining who will take the lead on cross-cutting action plan implementation will be worked out after the regional structure and priorities get established, and after full consideration of the staffing and resources available at each of the three sites.

Administration and Operations Action Plan

Goals

The goals of cross-cutting administration and operations for the Joint Management Plan Review (JMPR) are to (1) improve coordination and cooperation across the three Sanctuaries to better and more efficiently manage and protect Sanctuary resources, and (2) for the individual sites to start working and functioning as an integrated team. Fulfilling these goals for the three Sanctuaries requires enhancing communication and collaboration among and between managers, program staff and the newly established National Marine Sanctuary Program (NMSP) regions.

Issue Description

During scoping meetings, the NMSP received many comments relating to the need to coordinate various administration and operations across the sites. The three Sanctuary Advisory Councils and Sanctuary staff identified several of these issues as priority items to address in the management plan review. These include:

- Improve resource management consistency and efficiency
- Expand coordination and communication between sites and to the public
- Evaluate emergency response capabilities in the region, and clarify and coordinate the
- Sanctuary's role in relation to other agencies
- Develop a mechanism to address current and emerging issues between the sites
- Coordinate research/monitoring, education/outreach, and enforcement activities

Addressing the Issue

Each of the three Sanctuaries developed site-specific administration and operations action plans to address staffing and infrastructure needs in order to implement their new management plans. In contrast, this cross-cutting administration and operations plan targets some initial activities that will be implemented by all three sites in order to improve communication and maximize their ability to collaborate and cooperate on many important resource management and program areas.

Strategy XAO-1: Improve Internal Communications Among the Three Sanctuaries

Successful collaboration and coordination among Sanctuaries is related to the amount and intensity of communication. Though individual Sanctuary staff may occasionally communicate by e-mail, telephone or meetings, there is no established mechanism to bring together the managers or staff to proactively discuss issues that may affect multiple sites. This strategy focuses on improving communications between the sites to ensure there are regular opportunities for the managers, staff and the Advisory Councils to learn what is happening at each of the three sites and jointly plan regional programs and activities.

Activity 1.1: Improve communications between the Sanctuary Managers & Superintendents.

Managers and Superintendents will engage in more informal (random pick-up-the-phone) and formal (regularly scheduled calls or meetings) communications. They will meet at least three times a year of the newly established NMSP regional leadership team to (1) improve communication, (2) conduct Annual Operating Plan (AOP) planning, and/or (3) assess the implementation of AOPs and the JMPR action plans.

Products: List of cross-cutting AOP activities and an assessment of AOP/action plan implementation.

Partners: Managers for Cordell Bank National Marine Sanctuary (CBNMS), Gulf of the Farallones National Marine Sanctuary (GFNMS), and the Monterey Bay National Marine Sanctuary (MBNMS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.2: Sanctuary Managers/Superintendents will plan and schedule one regional Sanctuary update and team building activity per year.

Products: Annual team building/coordination meeting to discuss site-specific and cross-cutting projects, staff roles and responsibilities, and identify how staff can help support and complement the other sites' programs and staff.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.3: Create a new employee orientation program that includes information from the three Sanctuaries and the NMSP.

The orientation program should include travel to the other sites to meet staff and learn about their programs and activities. These efforts should be coordinated with similar efforts at headquarters.

Products: Employee orientation program that includes a reference binder with information from the other sites and headquarters, publications lists, staff bios.

Partners: MBNMS, CBNMS, GFNMS and NMSP staff

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.4: The program coordinators will meet separately at least once per year to share information and plan joint activities prior to the development of the annual operating plans.

Products: Site program coordinators (research, education, resource protection) will develop a list of joint or collaborative activities to include in their respective AOPs.

Partners: Program coordinators (research, education, resource protection at CBNMS, GFNMS, MBNMS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.5: Schedule one joint Advisory Council Chair – Sanctuary Manager meeting to determine whether all three Advisory Councils should meet annually.

The MBNMS and GFNMS Advisory Councils currently meet on an annual basis to discuss issues and program activities in the northern management area. This meeting among the Advisory Council chairs and managers would determine the need for expanding this meeting to include all three sites.

Products: Initial Joint Advisory Council Chair Meeting, possible future annual joint meetings.

Partners: CBNMS, GFNMS, MBNMS Advisory Council Chairs and Managers

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.6: Encourage and provide opportunities for site staff to give presentations at each other's Sanctuary Advisory Council Meetings.

Products: Briefings at Advisory Council meetings.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XAO-2: Improve the Efficiency and Cost-Effectiveness of Program Operations

Each of the three Sanctuaries have been designated for over ten years and during this time have accumulated an inventory of equipment, vessels and resources to support their own research/monitoring, education/outreach, and resource protection programs. This strategy recognizes there are instances in which it is more cost-effective to share resources among the sites and some instances when it may be more appropriate for each site to have their own. The sites must first inventory their existing resources and then jointly develop a needs assessment to document what is required to implement the four management plans. This strategy also calls for the sites to coordinate and provide opportunities to conduct joint field operations and to conduct an assessment in order to better cooperate and share facilities, signage and exhibits.

Activity 2.1: Develop a list of existing facilities, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.

Products: List of existing equipment, vessels and resources.

Partners: National Marine Sanctuary Program (NMSP), Cordell Bank National Marine Sanctuary (CBNMS), Gulf of the Farallones National Marine Sanctuary (GFNMS), and the Monterey Bay National Marine Sanctuary (MBNMS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.2: Develop a list of needed facilities, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.

Products: List of needed equipment, vessels and resources.

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.3: Contact and inform the other sites early in the planning stages of field operations to provide opportunities to plan joint missions and to share information and data.

Products: List of planned field operations. Shared data and reports.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XAO-3: Improve the Efficiency and Cost-Effectiveness of Program Administration

Currently each Sanctuary office is responsible for managing its own administration and information technology functions, including contracts, procurements, time and attendance, travel orders and vouchers, websites, databases, and geographic information systems. Each site employs a varying number of staff or contractors to perform some or all of these tasks. The goal of this strategy is to evaluate the staffing plans at the sites and maximize opportunities to share personnel and implement methods to make routine administrative functions more efficient. The strategy also highlights the importance of building upon existing efforts to share information technology resources.

Activity 3.1: Review the staffing plans at each Sanctuary to determine if collaborations are possible to create efficiencies, fill gaps, share staff resources and complete specific projects.

This review will explore ways to overcome barriers for both contractors and FTEs to participate.

Products: List of opportunities for collaborations between sites.

Partners: Managers for CBNMS, GFNMS, and MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-2
GF	AD-2
MB	OA-1

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 3.2: Based on the review in 3.1, and as opportunities arise, create short-term opportunities for staff exchanges, rotations, details and informal staff loans for specific projects or to fulfill on-going needs across all three sites.

Products: Update list of opportunities. Provide administrative, contract and/or financial options that facilitate such collaborations.

Partners: Managers for CBNMS, GFNMS, MBNMS, and NMSP

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
None	None

Activity 3.3: Participate in each other's interview panels to review candidates for new and vacant positions, where possible.

Products: Recommendations on new hires.

Partners: CBNMS, GFNMS, MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
None	None

Strategy XAO-4: Improve the Coordination of Sanctuary Resource Protection Activities and Programs

Each of the three site-specific management plans proposes various strategies to address their own resource protection programs (i.e., regulations/permitting, emerging issues, enforcement, emergency response). This strategy is aimed at improving the communication and coordination of resource protection activities across the three sites. The strategy addresses the need to improve internal understanding and awareness of regulatory and permit processes and activities. Secondly, it establishes a process to identify and, when appropriate, jointly address emerging issues in a regional capacity. Third, it recommends the development of a regional Sanctuary emergency response plan so that the NMSP is better prepared to address emergencies on a regional scale. Finally, it identifies the need to comprehensively evaluate enforcement needs in relation to the new management plans and develop and implement a regional enforcement plan.

Activity 4.1: Improve staff awareness and understanding of each site's regulations.

Establish a basic and consistent understanding of each site's regulations and ensure that everyone knows where to direct questions relating to specific regulations and permits.

Products: Fact sheet summarizing each site's regulatory and permit authority, and identifies the appropriate person to contact at each site.

Partners: NMSP, CBNMS, GFNMS, MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-9
GF	RP-4
MB	OA-8 and OA-9

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 4.2: Improve staff awareness and understanding of each site's permits.

Inform the other sites of any new permit applications or other activities that could affect any of the Sanctuaries.

Products: Share existing permit reports and explore whether a new reporting system is needed to improve coordination.

Partners: NMSP, CBNMS, GFNMS, MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-9
GF	RP-5
MB	OA-8

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 4.3: Coordinate emerging issues among the three sites.

As the sites identify emerging issues, determine the significance and potential to impact another site, and communicate this to the potentially affected site(s).

Products: Analysis of emerging issue(s).

Partners: NMSP, CBNMS, GFNMS, MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-10
GF	RP-1, RP-2 & RP-3
MB	EI-1 & EI-2

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 4.4: Develop coordinated strategies to address emerging issues.

Jointly determine if a new or emerging issue needs action and identify a strategy and activities to address the issue, depending on whether it is an immediate or long-term threat, what is (or is not) known about it, and if there are adequate resources to address it properly.

Products: Recommendation for action, including next steps.

Partners: NMSP, CBNMS, GFNMS, MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-10
GF	RP-1, RP-2 & RP-3
MB	EI-1 & EI-2

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 4.5: Develop a coordinated Sanctuary emergency response plan.

Develop a coordinated Sanctuary emergency plan describing how the three Sanctuaries will internally coordinate and respond to emergencies including: oil spills, hazardous material spills, vessel groundings, plane crashes, and natural disasters. The plan should address broad emergency response issues that affect the region, identify NMSP staffing responsibilities and expertise, and outline how the NMSP will coordinate with existing federal, state and local emergency response agencies in California. The plan will be developed to utilize the existing Incident Command System (ICS), the U.S. Coast Guard (USCG) Area Contingency Plan (ACP)

Products: Regional Sanctuary Emergency Response Plan.

Partners: NMSP, CBNMS, GFNMS, MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-7
GF	RP-7 & RP-8
MB	OA-4

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 4.6: Coordinate with the NMSP Damage Assessment Team on populating and making the Sanctuary Hazardous Incident Emergency Logistics Database System (SHIELDS) functional and operative for the three Sanctuaries and integrating it with the existing Sanctuary Integrated Monitoring Network (SIMoN) database.

Products: SHIELDS for CBNMS, GFNMS and MBNMS.

Partners: NMSP, CBNMS, GFNMS, MBNMS and the National Oceanic and Atmospheric Administration Hazardous Materials (NOAA HAZMAT)

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-7
GF	RP-7

MB	OA-4

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 4.7: Develop a comprehensive enforcement plan for the tri-Sanctuary area.

This plan will evaluate enforcement needs to implement this management plan and integrate existing formal and informal enforcement networks across this region. The plan should also include a consistent enforcement penalty schedule and an internal communication strategy.

Products: Coordinated enforcement plan for the 3-Sanctuary area.

Partners: CBNMS, GFNMS, MBNMS, GCOS, GCEL, NOAA-Office of Law Enforcement (OLE), the United States Coast Guard (USCG), NPS, CA Parks, California Department of Fish and Game (CDFG), County Sheriff Departments

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-6
GF	RP-6
MB	See MB Appendix 6.

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 4.8: Implement a comprehensive enforcement plan for the tri-Sanctuary area.

Products: Enforcement activities that implement the comprehensive enforcement plan, including appropriate development of field officers, improved investigation and follow-up actions, and cooperative enforcement agreements with federal, state and local partners.

Partners: NMSP, CBNMS, GFNMS, MBNMS

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	AD-6
GF	RP-6
MB	see MB Appendix 6

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Table XCAO-1: Measuring Performance of the Cross-Cutting Administration & Operations Action Plan

Desired Outcome(s) For This Action Plan:	
Improved communication and coordination among Sanctuary staff resulting in more integrated and coordinated resource protection for Sanctuary resources.	
Performance Measures	**Explanation**
Increase the number of cross-cutting AOP activities that each site includes in their site-specific AOP by 10% each year.	One of the primary purposes of this action plan is to increase the amount of communication and interaction among the three sites. This action plan identifies specific opportunities for staff to interact, resulting in more coordinated planning and implementation of joint activities that address priority issues. The tangible results of these interactions will be formulated within each site's AOP.

Table XCAO-2: Cross-Cutting Administration & Operations Action Plan Timeline

Administration & Operations Action Plan	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Strategy XAO-1: Improve Internal Communications Among the Three Sanctuaries					
Activity 1.1: Improve communications between the Sanctuary Managers & Superintendents.	→	→	→	→	→
Activity 1.2: Sanctuary Managers/Superintendents will plan and schedule one regional Sanctuary update and team building activity per year.	→	→	→	→	→
Activity 1.3: Create a new employee orientation program that includes information from the three Sanctuaries and the NMSP	→	→	→	→	→
Activity 1.4: The program coordinators will meet separately at least once per year to share information and plan joint activities prior to the development of the annual operating plans.	→	→	→	→	→
Activity 1.5: Schedule one joint Advisory Council Chair – Sanctuary Manager meeting to determine whether all three Advisory Councils should meet annually.		⇢	⇢	⇢	⇢
Activity 1.6: Encourage and provide opportunities for site staff to give presentations at each other's Sanctuary Advisory Council Meetings.	→	→	→	→	→
Strategy XAO-2: Improve the Efficiency and Cost-Effectiveness of Program Operations					
Activity 2.1: Develop a list of existing facilities, signage, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.		→			
Activity 2.2: Develop a list of needed facilities, signage, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.		→			

Administration & Operations Action Plan	Year 1	Year 2	Year 3	Year 4	Year 5
Activity 2.3: Contact and inform the other sites early in the planning stages of field operations to provide opportunities to plan joint missions and to share information and data.	→	→	→	→	→
Strategy XAO-3: Improve the Efficiency and Cost-Effectiveness of Program Administration					
Activity 3.1: Review the staffing plans at each Sanctuary to determine if collaborations are possible to create efficiencies, fill gaps, share staff resources and complete specific projects.	→				
Activity 3.2: Based on the review in 3.1, and as opportunities arise, create short-term opportunities for staff exchanges, rotations, details and informal staff loans for specific projects or to fulfill on-going needs across all three sites.		⇢	⇢	⇢	⇢
Activity 3.3: Participate in each other's interview panels to review candidates for new and vacant positions, where possible.	→	→	→	→	→
Strategy XAO-4: Improve the Coordination of Sanctuary Resource Protection Activities and Programs					
Activity 4.1: Improve staff awareness and understanding of each site's regulations.	→	→	→	→	→
Activity 4.2: Improve staff awareness and understanding of each site's permits.	→	→	→	→	→
Activity 4.3: Coordinate emerging issues among the three sites.	→	→	→	→	→
Activity 4.4: Develop coordinated strategies to address emerging issues.	→	→	→	→	→
Activity 4.5: Develop a coordinated Sanctuary emergency response plan.		→	→		
Activity 4.6: Coordinate with the NMSP Damage Assessment Team on populating and making the Sanctuary Hazardous Incident Emergency Logistics Database System (SHIELDS) functional and operative for the three Sanctuaries and integrating it with the existing Sanctuary Integrated Monitoring Network (SIMoN) database.		→	→		
Activity 4.7: Develop a comprehensive enforcement plan for the three-Sanctuary area.	→				
Activity 4.8: Implement a comprehensive enforcement plan for the three-Sanctuary area.		→	→	→	→

Legend:

→ Planned Activity

⇢ Proposed Activity, based on internal assessment

Table XCAO-3: Estimated Costs to Implement the Administration & Operations Action Plan

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XAO-1: Improve Internal Communications Among the Three Sanctuaries	$54.00	$54.00	$54.00	$54.00	$54.00	$270.00
Strategy XAO-2: Improve the Efficiency and Cost-Effectiveness of Program Operations	$36.00	$36.00	$36.00	$36.00	$36.00	$180.00
Strategy XAO-3: Improve the Efficiency and Cost-Effectiveness of Program Administration	$12.00	$12.00	$12.00	$12.00	$12.00	$60.00
Strategy XAO-4: Improve Coordination of Sanctuary Resource Protection Activities and Programs	$186.00	$174.00	$162.00	$162.00	$162.00	$846.00
Total Estimated Annual Cost	*$288.00*	*$276.00*	*$264.00*	*$264.00*	*$264.00*	*$1,356.00*
* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.						
** Contributions from outside funding sources also anticipated.						
For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.						

Community Outreach Action Plan

Goal

A coordinated, collaborative regional community outreach strategy will build awareness throughout north-central California, and beyond, about (1) the existence and purpose of the three Sanctuaries and the national program; (2) the diverse natural resources and ecosystems of each Sanctuary and why they need protection; (3) why their existence is relevant to people; (4) the economic and intrinsic value of the three Sanctuaries to coastal and inland communities beyond such direct industries as fishing and ecotourism; (5) how these three Sanctuaries are working with constituent groups; and (6) how individuals and groups can be engaged in helping the Sanctuaries accomplish their resource protection, research, and education goals.

Issue Description

Under the National Marine Sanctuary Program (NMSP), each Sanctuary in the system conducts education and outreach activities to build broad public awareness about the existence and purpose of our nation's marine Sanctuaries. The NMSP recognizes a well-informed local, regional, and national constituency greatly enhances the ability of the Sanctuaries to protect their natural and cultural resources. Therefore, outreach activities should provide local and state governments, businesses, non-governmental organizations, constituent groups, and the general public with the information necessary to be effective partners in the stewardship of Sanctuary resources.

Because of limited resources generally, each site has primarily focused on a select number of audiences within a limited geographic area. As a result, there are several areas where a broad-based public understanding needs to be enhanced. For example, there appears to be a lack of understanding and/or confusion about:

- The unique situation of having three Sanctuaries contiguously located in north-central California,
- How these three Sanctuaries together can work with other organizations to enhance regional outreach efforts regarding marine ecosystems,
- How individuals and groups can engage effectively with the Sanctuary Program and best protect Sanctuary resources, and
- How businesses, constituent groups, agencies, elected officials and others can provide informed input into decisions regarding Sanctuary management and further enhance community awareness of the Sanctuaries.

This action plan identifies appropriate regional audiences and topics, regional outreach strategies, and marketing and media exposure efforts that effectively highlight specific program activities across all three sites as well as the national system. It is also designed to complement each site-specific program and to be flexible enough to incorporate new strategies and topics over time.

Effective community outreach is accomplished through a continuous cycle of ocean and coastal outreach, education, and stewardship. Community outreach expands awareness, knowledge and ultimately changes attitudes and behaviors. By providing information on ocean and coastal resources, and providing stewardship opportunities for people to get involved in the Sanctuary, people will begin to have a personal relationship with the Sanctuary and may be more likely to become ambassadors helping to protect Sanctuary resources. Community outreach involves three strategies tailored to the specific needs and interests of a given audience and may be delivered by members of that audience.

- Outreach provides audiences with Sanctuary-related information and materials promoting ocean and coastal stewardship.
- Education provides fundamental scientific understanding, knowledge, training, or professional development on topics relevant to the world's atmosphere, climate, oceans and coastal ecosystems, and resource protection.
- Stewardship is a personal sense of responsibility to take informed action and make caring choices, at home or work, which promote and protect the health of our coasts and oceans.

Strategy XCO-1: Build Upon and Expand Existing Ocean and Coastal Outreach

This strategy is aimed at raising general awareness of marine ecosystems, individual Sanctuaries and the Sanctuary Program, and inspiring stewardship of ocean and coastal resources. Outreach provides audiences with Sanctuary-related information and materials based on National Oceanic and Atmospheric Administration (NOAA) science, products, and services that promote ocean and coastal stewardship. These audiences may be: north-central California coastal residents; people who live and work in inland California communities that regularly visit the ocean, such as divers, kayakers, tidepoolers, etc.; those who make their living within the ocean environment, like fishermen, maritime shipping companies, etc.; or people who live outside California that care about the ocean even though they may never visit. These, and others, are important voices in the protection and stewardship of the oceans. Key target audiences and messages should also be closely coordinated with outreach needs identified in the issue-related action plans.

Activity 1.1: Develop or strengthen coordinated outreach programs and opportunities, such as public service announcements, issue-specific workshops and brochures (e.g., tide pool etiquette), docent programs, signage, learning centers, or exhibits and displays at community events.

Products:	Priority list of outreach activities based on the priority issues identified in the management plans. Some of these activities include joint outreach programs, volunteer opportunities, website development, signage and interpretive exhibits.
Partners:	Advisory Council members from all three Sanctuaries/working groups, Farallones Marine Sanctuary Association, Monterey Bay Sanctuary Foundation, National Marine Sanctuary Foundation, Channel Islands National Marine Sanctuary (CINMS), Channel Islands Sanctuary Foundation/Association, NOAA Enforcement.

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.2: Plan and conduct regional Sanctuary outreach events to promote the importance of monitoring, disseminate monitoring data, and improve understanding of marine conservation and management.

Products: Outreach and education materials/curricula to promote awareness of monitoring activities and disseminate monitoring data.

Partners: Cordell Bank National Marine Sanctuary (CBNMS), Gulf of the Farallones National marine Sanctuary (GFNMS), Monterey Bay National Marine Sanctuary (MBNMS), Sanctuary Integrated Monitoring Program (SIMoN), Community Outreach Working Group, Snapshot Day Water Quality Monitoring Event, Long-term Monitoring Program and Experiential Training for Students (LiMPETS), Beach Watch, Beach Coastal Ocean Mammal/Bird Educational and Research Survey (Beach COMBERS), Farallones Marine Sanctuary Association (FMSA), Global Learning and Observation to Benefit the Environment (GLOBE), JASON Foundation for Education

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.3: Develop and implement joint media communications plan (print, radio, TV, Internet, etc.).

Products: Joint media communications plan, including site points of contact, and key messages from the management plans.

Partners: Traditional and electronic media, both coastal and inland, including local weekly papers, Community access TV stations

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.4: Identify and partner with external programs to incorporate Sanctuary-related messages.

Products: External partners' outreach plan, including priority partners, key messages based on priority issues identified in the management plans, outreach materials.

Partners: United States Coast Guard (USCG), National Park Service (NPS), Environmental Protection Agency (EPA), other federal agencies, California State Parks, other state agencies, cities, local parks/recreation departments, pollution prevention programs, chambers of commerce, trade associations for shipping, fishing, tourism, etc. dive clubs/shops, kayak clubs/shops, spot abalone divers, other recreational groups, natural history museums, institutions with community service requirements/marine sciences (high schools, colleges)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XCO-2: Enhance and Coordinate Ocean and Coastal Education
This strategy focuses on building community knowledge and fostering caring actions and attitudes targeting priority issues identified in the management plans. The NMSP's joint ocean and coastal education efforts provide a fundamental scientific understanding, knowledge, training, or professional development to a particular audience on topics identified as important to protect Sanctuary resources. There are many possible audiences, such as students, teachers, state and local agencies, community leaders, and the general public. Sanctuary-related educational activities are based on NOAA science, systematic in design with clear goals, objectives and measurable outcomes; aligned, where appropriate, with state or national education standards; and designed to facilitate evaluation by a third party.

Activity 2.1: Collaborate on existing site-specific education programs and products as a means to enhance and expand educational offerings.

Each year, the education staff will jointly meet to identify collaborative projects for inclusion in their respective AOPs.

Products: Joint education implementation strategy based on priority education issues identified in the management plans, incorporating priority list of educational programs and materials needed, potential lecture/symposia themes. Joint online teachers' database.

Partners: West Coast Education Liaison, state/local volunteer programs, Bay Area Sea Kayakers (BASK), high school/college classes doing coastal monitoring, National Science Foundation, other federal agencies (esp. for funding), Local NGO's/non-profits, Association of Monterey Bay Area Governments, Association of (SF) Bay Area Governments

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.2: Following expansion of the MERITO program, increase multicultural/multi-lingual efforts based on needs assessments to determine other multi-cultural, socio-economic, or multi-lingual communities (Vietnamese, Chinese, Portuguese, Italian, etc.) and their interests.

Products: Needs assessments of various multi-cultural, socio-economic, and multi-lingual communities and possible expansion of education efforts.

Partners: Multi-cultural community leaders, bilingual school programs, Local NGO's/non-profits

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.3: Identify and implement new education programs that can be developed jointly

Products: Teacher workshops, Volunteer Naturalist Corps program, certification training program for professional naturalists, similar to SBNMS (Stellwagen Bank), natural history guides.

Partners: Other National Marine Sanctuaries (esp. Channel Islands, Olympic Coast and Stellwagen Bank), Elkhorn Slough National Estuarine Research Reserve, state/local volunteer naturalist programs, Marine Advanced Technology Education (MATE), Monterey Bay Aquarium Research Institute (MBARI), Moss Landing Marine Lab, universities, and Sea Grant institutions, Eco-tourism businesses such as dive and kayak shops, whale-watching companies, local non-governmental organizations/non-profits

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XCO-3: Enhance Ocean and Coastal Stewardship

Marine Sanctuary stewardship is a personal sense of responsibility to take informed action and make caring choices, at home or work, which promote and protect the health of our coasts and oceans. A steward develops attitudes, motivations, and commitments that are reflected in informed decisions and responsible actions. Stewards can be individuals, members of groups, or entities that influence others' opinions and actions about the oceans. Stewardship can be demonstrated through a variety of means, including:

- Volunteer for an organized stewardship program,
- Take personal action to protect our ocean Sanctuaries,
- Provide informed public input into decisions regarding the Sanctuaries, and
- Inform others regarding marine ecosystems and the Sanctuary Program.

Similar to the audiences for outreach, ocean and coastal stewards may be north-central California coastal residents, people who live and work in inland California communities that regularly visit the ocean, those who make their living within the ocean environment, or people who care about the ocean even though they may never visit.

Activity 3.1: Create, maintain and promote Sanctuary and partner volunteer programs to provide opportunities for stewardship as well as expanding resource protection, education, and outreach capabilities of the three Sanctuaries.

Products: Expanded volunteer programs, volunteer opportunities, and trainings.

Partners: NOAA's Team OCEAN, Elkhorn Slough National Estuarine Research Reserve, Farallones Marine Sanctuary Association, Monterey Bay Sanctuary Foundation, Bay Net, Save Our Shores, other non-governmental organizations, California State Parks, other state/local resource agencies, Friends of Fitzgerald Marine Reserve, high school service learning programs

Activity 3.2: Create new ways to inspire coastal and ocean stewardship in local communities.

The three sites will conduct needs assessments with targeted constituents and audiences to identify innovative and creative methods of engaging people in Sanctuary activities. Some examples include working with faith-based or cultural organizations, retired citizens or local art groups.

Products: Pilot program or campaign to incorporate non-traditional stewardship activities and partners.

Partners: Faith-based groups, Multi-cultural groups, bilingual school programs, after-school programs, art, dance and music programs, service organizations

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.3: Identify partners to incorporate stewardship messages.

Products: Collaborative stewardship campaign.

Partners: United States Coast Guard (USCG), National Parks Service (NPS), other federal agencies, California State Parks, other state agencies, cities, local parks/recreation departments, local agencies mandated to have pollution prevention programs (water pollution control, solid waste control), County Sheriffs' departments, city police, Chambers of commerce, Trade associations for shipping, fishing, tourism, etc., dive clubs, kayak clubs, other recreational groups, natural history museums, institutions that have community service requirements (high schools, colleges), service organizations

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Table XCCO-1: Measuring Performance of the Cross-Cutting Community Outreach Action Plan

Desired Outcome(s) For This Action Plan:	
Expand joint education and outreach efforts in a manner enhancing protection for Sanctuary resources and the delivery of programs and services to local communities.	
Performance Measures	**Explanation**
Increase the number of joint education and outreach efforts directed at communities from 1,000 individuals in Year 1 to 5,000 individuals in Year 5.	One of the main purposes of this action plan is to expand general awareness of the three Sanctuaries, develop joint education products addressing priority issues, and increase involvement of individuals in the stewardship of the resources in the three Sanctuaries. Some of the programs directed at local communities include schools and teachers, volunteers, fairs and festivals, visitor centers, public lecture series, etc.

Table XCCO-2: Cross-Cutting Community Outreach Action Plan Timeline

Community Outreach Plan	Year 1	Year 2	Year 3	Year 4	Year 5
Cross-cutting Outreach					
Strategy XCO-1: Build Upon and Expand Existing Ocean and Coastal Outreach					
Activity 1.1: Develop or strengthen coordinated outreach programs and opportunities, such as public service announcements, issue-specific workshops and brochures (e.g., tidepool etiquette), docent programs, signage, learning centers, or exhibits and displays at community events.	.....	→	→	→	→
Activity 1.2: Plan and conduct regional Sanctuary outreach events to promote the importance of monitoring, disseminate monitoring data, and improve understanding of marine conservation and management.	.....	→	→	→	→
Activity 1.3: Develop and implement joint media communications plan (print, radio, TV, Internet, etc.).		→	→	→	→
Activity 1.4: Identify and partner with external programs to incorporate Sanctuary-related messages.	→	→	→	→	→
Cross-cutting Education					
Strategy XCO-2: Enhance and Coordinate Ocean and Coastal Education					
Activity 2.1: Collaborate on existing site-specific education programs and products as a means to enhance and expand educational offerings.	.....	→	→	→	→
Activity 2.2: Increase multicultural/multilingual efforts based on needs assessments to determine other multi-cultural, socio-economic, or multi-lingual communities (Vietnamese, Chinese, Portuguese, Italian, etc.) and their interests.			→	→	→
Activity 2.3: Identify and implement new education programs that can be developed jointly.	.....	→	→	→	→
Cross-cutting Stewardship					
Strategy XCO-3: Enhance Ocean and Coastal Stewardship					
Activity 3.1: Create, maintain, and promote Sanctuary and partner volunteer programs to provide opportunities for stewardship as well as expanding resource protection, education, and outreach capabilities of the three Sanctuaries.	→	→	→	→	→
Activity 3.2: Create new ways to inspire coastal and ocean stewardship in local communities.			→	→	→
Activity 3.3: Identify partners to incorporate stewardship messages.	→	→	→	→	→

Legend:

→ Planned Activity

..... → Proposed Activity, based on internal assessment

Table XCCO-2: Estimated Costs to Implement the Cross-Cutting Community Outreach Action Plan

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XCO-1: Build Upon and Expand Existing Ocean and Coastal Outreach	$34.50	$46.50	$46.50	$46.50	$58.50	$232.50
Strategy XCO-2: Enhance and Coordinate Ocean and Coastal Education	$57.00	$69.00	$69.00	$69.00	$81.00	$345.00
Strategy XCO-3: Enhance Ocean and Coastal Stewardship	$52.50	$64.50	$64.50	$64.50	$76.50	$322.50
Total Estimated Annual Cost	*$144.00*	*$180.00*	*$180.00*	*$180.00*	*$216.00*	*$900.00*
* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.						
** Contributions from outside funding sources also anticipated.						
For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.						

Ecosystem Monitoring Action Plan

Goals

The goals of ecosystem monitoring for the northern-central California Sanctuaries are to (1) determine the current and anticipate the future status of Sanctuary resources, (2) understand the limits of variation in resources, (3) detect temporal and spatial changes in resources, (4) identify potential agents of change, and (5) provide scientific information that can guide management decisions on priority issues.

Introduction

The legislation establishing the National Marine Sanctuary System requires that long-term monitoring of Sanctuary resources be supported, promoted, and coordinated (16 U.S.C. 1431). Sanctuaries also promote data collection to assess resource or environmental change with respect to implemented management actions. The suite of monitoring information required by Sanctuary management includes data from within the Sanctuary and from areas outside the boundaries that influence Sanctuary waters.

For the most part, individual Sanctuaries work independently to develop monitoring programs and partnerships to inform their management concerns. These programs typically rely on substantial support from other government, private, and academic institutions at the federal, state, and local levels. The program designs are often only indirectly influenced by Sanctuary management responsibilities.

Undertaking ecosystem monitoring requires long-term comprehensive assessments and broad scale integration of data collected in a wide variety of habitats (e.g., coastal interface, subtidal, continental shelf, shelf break, and deep water) and in areas that directly influence them (e.g., watershed, estuaries, coastal currents). Such assessments and integration can only be achieved through coordination with multiple partners focused on a variety of resources and geographic scales. Because the three Sanctuaries of Cordell Bank, Gulf of the Farallones, and Monterey Bay have contiguous boundaries, they protect and manage many of the same habitats types and living resources, some of which range throughout the combined area. As such, the Sanctuaries should consider each other as primary partners in monitoring efforts to evaluate the status and trends of these shared resources. Coordination among the three Sanctuaries to promote, conduct, integrate, and synthesize data from ecosystem monitoring activities is the most effective and efficient means to improve availability of information for resource conservation and management across the region.

The combined areas of the Cordell Bank (CB), Gulf of the Farallones (GF) and Monterey Bay (MB) National Marine Sanctuaries (NMS) also represent a substantial portion of California coastal waters. Regional Sanctuary monitoring coordination across this extensive area will help promote Sanctuary management concerns as a driver for large-scale monitoring initiatives and partnerships. The data collected from coordinated efforts will be useful at the local and regional scale, with the potential for influencing resource management actions throughout a substantial portion of the West Coast.

Addressing the Issue

With the exception of Cordell Bank, most of the monitoring data that informs Sanctuary management are not financed, collected, or analyzed by the Sanctuaries. Instead, Sanctuaries support and promote these activities indirectly by providing vessel time, staff support, and equipment, and coordinating the interests and information of outside agencies and partners. They also assist to secure outside funding that can be directed toward projects that address Sanctuary information needs such as the Sanctuary Integrated Monitoring Network (SIMoN).

Such indirect support is appropriate to the mandate and capacities of the Sanctuary program. Sanctuaries do not have the expertise or the personnel resources to collect and analyze the variety of information required for all of their management needs. Such expertise is accessible through partnerships with various research institutions. However, effective resource management requires a holistic view, which Sanctuaries are uniquely positioned to achieve. To meet their resource management mandate, Sanctuaries must synthesize and integrate information from disparate research and monitoring projects. They have the further responsibility of interpreting and applying available scientific knowledge for resource managers and the public. Thus, coordination of ecosystem monitoring efforts requires strategic action on various Sanctuary-specific programmatic levels.

Recommended strategies focus on coordinating existing activities, identifying opportunities for additional coordination, and establishing the administrative infrastructure, advisory panels, and oversight mechanisms required to support, direct, and evaluate coordinated monitoring across the three Sanctuaries. Because many of the monitoring requirements common to the three Sanctuaries undergoing the Joint Management Plan Review (JMPR) overlap with the interests of Channel Islands and Olympic Coast National Marine Sanctuaries, the strategies recommended in this proposed action plan should serve as a model for expanded coordination of appropriate monitoring activities across all five of the West Coast Sanctuaries. The strategies are also consistent with efforts of the System Wide Monitoring program (SWiM) to improve collection, evaluation, and interpretation of monitoring information throughout the system of Sanctuaries. Thus, these activities promote system and regional integration across the program as well as improving ecosystem conservation and management in the combined area of the three Sanctuaries.

Strategy XEM-1: Coordinate Existing Targeted Monitoring Activities to Promote Greater Efficiency and Effectiveness

Priority activities for initiation of joint ecosystem monitoring within the region should be focused on the coordination of existing Sanctuary-specific monitoring programs that assess similar ecosystems in at least two of the three Sanctuaries. This includes coordinating targeted programs that monitor conditions in the coastal interface and the pelagic/offshore systems.

These priorities are based on the need to establish common ecological monitoring efforts throughout the region and the priority issue areas identified in the management plan review that could best be addressed through a coordinated approach among the Sanctuaries. Some of the

priority habitats that have been identified for joint monitoring include: rocky intertidal, benthic, and pelagic/open ocean. The coordination channels and activities established to support these targeted efforts could serve as a model for additional monitoring coordination in the future. Other existing or newly emerging monitoring activities, not identified in this action plan, represent potential opportunities for additional coordination. Assessment of such opportunities is addressed in Strategies XEM-2 and XEM-3.

Activity 1.1: Coordinate individual Sanctuary rocky intertidal monitoring programs and investigate opportunities to collaborate with other large-scale rocky intertidal monitoring efforts.

Products: Regional Sanctuary rocky intertidal monitoring plan.

Partners: MBNMS, GFNMS, (PISCO), Multi-Agency Rocky Intertidal Network (MARINE), National Park Service (NPS), Southern California Coastal Water Research Project Authority (SCCWRP), Bodega Marine Laboratory (BML), Tenera Inc., Minerals Management Service (MMS), Kinetic Labs, Inc.

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.2: Conduct a workshop to coordinate data collection protocols for Beach COMBERS and Beach Watch Programs that indirectly assess the health of the pelagic/offshore ecosystem.

Products: Coordination document for joint reporting; volunteer training, coordination, and enrichment opportunities; data collection, management and metadata standards; coordinated revision and reprinting of the field guide; plan for shared study skin collection.

Partners: CBNMS, GFNMS, MBNMS, SIMoN, NMSP, Coastal Observation and Seabird Survey Team (COASST)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.3: Develop an integrated Sanctuary marine mammal and seabird survey monitoring plan for the three Sanctuaries to coordinate and supplement the NOAA Fisheries five-year surveys.

Products: Plan to coordinate and supplement ongoing NOAA Fisheries five-year Sanctuary marine mammal/seabird monitoring surveys (per recommendations developed during the Marine Mammal/Seabird Workshop in December 2002). Joint ship-time requests or contracts to ensure consistent availability of appropriate survey platforms. Joint NOAA Ship McArthur II cruises.

Partners: NOAA Fisheries, CBNMS, GFNMS, MBNMS, CINMS, OCNMS, Center for Integrated Marine Technology (CIMT), NPS, Point Reyes Bird Observatory (PRBO), SIMoN

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.4: Explore the potential for the expansion of existing fish surveys, such as the CalCOFI transect lines through Gulf of the Farallones and Cordell Bank, and continuation in Monterey Bay.

Products: Assessment for expansion of CalCOFI transects in Cordell Bank and Gulf of the Farallones.

Partners: CBNMS, GFNMS, MBNMS, California Cooperative Oceanic Fisheries Investigations (CalCOFI), Monterey Bay Aquarium Research Institute (MBARI), NOAA Fisheries, Alliance for California Current Ecosystem Observation (ACCEO), NOAA-National Centers for Coastal Ocean Service (NCCOS), SIMoN, University of California-Santa Cruz (UCSC)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.5: Jointly develop research cruise plans and standards for sampling and reporting results for benthic habitat survey work.

Products: Research plans such as that developed for the Delta submarine that detail the annual survey work, and a report that summarizes the annual findings and results.

Partners: CBNMS, GFNMS, MBNMS, NOAA Fisheries, California Department of Fish and Game (CDFG), U.S. Geological Service (USGS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.6: Augment the benthic habitat survey work with new technologies such as ROV surveys.

Products: Additional research cruises that use remotely operated vehicles (ROVs) and other technologies. Cruise reports that summarizes the mission's findings and results.

Partners: CBNMS, MBNMS, NOAA Fisheries, CDFG, USGS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XEM-2: Coordinate and Implement Existing Regional Ecosystem Monitoring Activities

Over the last decade, many federal and state agencies have actively participated in collaborative efforts to develop and implement integrated coastal and ocean observing and data management systems. To further these efforts, the NMSP, and many individual Sanctuaries, has been working closely with its partners to build upon and integrate existing site monitoring programs into regional ecosystem monitoring programs. The following activities have been identified as pilot programs within the NMSP to test the concept of integrating observation data and making it available to resource managers and the public.

Activity 2.1: Implement the West Coast Observation Project at CBNMS, GFNMS and MBNMS.

The West Coast Observation Project (also known as Sanctuary Ecosystem Assessment Stations) integrates ocean observation data collected at Olympic Coast, Cordell Bank, Gulf of the Farallones, Monterey Bay, and Channel Islands National Marine Sanctuaries. The project will focus on data streams collected at numerous new instrument moorings that will be installed at specific locations within each of the five Sanctuaries. Some of these instrument moorings will be maintained and operated by the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) in the MBNMS and CINMS. The project intends to make the monitoring data accessible via the Internet in an Integrated Ocean Observing System (IOOS) compatible format. The data from this project will be shared with managers and the public through the Sanctuary Integrated Monitoring Network (SIMoN) website.

Products: Data buoys deployed, data management system, on-line access to data.

Partners: CBNMS, GFNMS, MBNMS, CINMS, OCNMS, SIMoN, NMSP, PISCO, NCCOS, NOAA-National Coastal Data Development Center (NCDDC), NOAA-National Oceanographic Data Center (NODC), National Data Buoy Center (NDBC), NOAA National Environmental Satellite Data Information Service (NESDIS), NOAA Fisheries, Central California Ocean Observing System (CenCOOS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.2: Develop and implement an integrated NMSP's System-Wide Monitoring (SWiM) program for CBNMS, GFNMS and MBNMS.

The primary purpose of the System-Wide Monitoring (SWiM) program is to monitor specific ecological parameters of the Sanctuary and ensure the timely flow of data and information to those responsible for managing and protecting resources in the ocean and coastal zone, and to those that use, depend on, and study the ecosystems encompassed by the Sanctuaries. It does this by enabling marine Sanctuaries to develop effective ecosystem-based monitoring programs that address management information needs. SWiM provides a design process to decide what parameters to sample and how to sample them in a way that can be applied consistently at multiple spatial scales and to multiple resource types. It also provides a reporting strategy to enable the evaluation of status and trends in protected resources and activities that affect them.

Finally, SWiM provides a method to share information for broader issues and scales, and contribute to multi-site, regional and national research and monitoring activities. These efforts will be integrated with SIMoN, which implements the monitoring, coordinates with partners, and provides GIS, web and other products that allows for local and regional information sharing.

Products: Integrated and tailored SWiM program developed at CBNMS, GFNMS & MBNMS.

Partners: CBNMS, GFNMS, MBNMS, SIMoN, NMSP, PISCO, NCCOS, NDBC, NESDIS, NOAA Fisheries, NOAA National Estuarine Research Reserve System (NERRS), U.S. Environmental Protection Agency (EPA), NPS, U.S. Fish and Wildlife Service (USFWS), Mineral Management Service (MMS), USGS, Ocean-US, State of California

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.3: Conduct a needs assessment and develop a site implementation plan for expanding the Sanctuary Integrated Monitoring Network (SIMoN) to the Gulf of the Farallones and Cordell Bank Sanctuaries.

As part of the process to establish SIMoN, the MBNMS completed a comprehensive assessment of monitoring activities and priorities. Similar assessments have been conducted for CBNMS and GFNMS as part of the management plan review. Collectively, these assessments have identified priority research and monitoring needs for each site based on the issues addressed in the management plan. Some of the common research and monitoring needs include baseline ecosystem characterization and observation; invasive species; water quality; and assessing the various types of human disturbance and impacts from such activities as sound, light, physical disturbance, and fishing. The next step is to compare the assessments, develop a list of shared priorities and data gaps, integrate the existing information into a common database, and implement joint monitoring activities. SIMoN will be the primary mechanism to coordinate data and information among the sites. This network will be expanded from MBNMS to both CBNMS and GFNMS.

Product: CBNMS and GFNMS SIMoN needs assessment and implementation plan(s) that compares research and monitoring needs identified in the management plans.

Partners: NMSP, SIMoN, MBNMS, GFNMS, and CBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.4: Explore Opportunities to Integrate SIMoN with other Regional Monitoring Efforts such as West Coast Observations and other IOOS projects.

Product: Updated SIMoN database consistent with Integrated Ocean Observing Systems (IOOS) protocols and standards.

Partners: NMSP, SIMoN, MBNMS, GFNMS, CBNMS, NODC, SeaMap, IOOS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.5: Evaluate and Identify Ongoing Funding Opportunities to Support Regional and Larger Scale Ongoing Monitoring Activities.

Products: identification of new partnerships and funding mechanisms to support regional monitoring efforts;

Partners: CBNMS, GFNMS, MBNMS, SIMoN, NMSP, NCCOS, NMFS, Farallones Marine Sanctuary Association (FMSA), Monterey Bay Sanctuary Foundation (MBSF)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XCEM-3: Establish a Joint Internal Monitoring Coordination Team

Coordination of monitoring activities among the Sanctuaries requires an administrative infrastructure to identify and act on cross-boundary opportunities, collaborate with large-scale initiatives, and interpret the results for resource managers and public audiences across the region.

Activity 3.1: Establish a Monitoring Coordination Team.

The internal monitoring coordination team could be composed of the entire science staff of the three Sanctuaries, or at a minimum the research coordinators.

Product: Integrated Ecosystem Monitoring Team, biannual meetings to develop integrated monitoring plans and proposals, joint reports.

Partners: CBNMS, GFNMS, MBNMS, NMSP, SIMoN

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.2: Develop a Research and Monitoring Communication Plan to Improve Coordination Among the Sanctuaries' Research Staffs and Partners.

Products: Research a communication plan, Sanctuary list serve, and development of joint projects, research plans and proposals.

Partners: CBNMS, GFNMS, MBNMS, SIMoN

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.3: Evaluate and Provide Recommendations on the Joint Reporting of Monitoring Activities through Periodic "State of the Sanctuaries" Reports for Cross-cutting Monitoring Activities Among the Three Sanctuaries.

Product: State of the Sanctuaries report.

Partners: SIMoN, SWiM, NMSP, NODC

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.4: Develop Annual Ecosystem-based Research and Monitoring Operating Plans in Collaboration with each other to Meet Site, Regional, and National Monitoring Needs.

Product: Development and implementation of site-specific monitoring programs for each site that integrate regional ecosystem monitoring requirements and needs.

Partners: CBNMS, GFNMS, MBNMS, NMSP, SIMoN

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XEM-4: Consider Establishing a Joint Research Activities Panel to Enhance Research and Monitoring Collaborations

Research staff and interests at all three sites should discuss the need to establish a formal or informal joint research advisory panel (JRAP) consisting of representatives from the site RAPs to assist with ongoing coordination of existing activities and identification of emerging opportunities.

Activity 4.1: Evaluate the Need and Feasibility of Establishing an Ad-hoc or Standing Joint Research Activities Panel (JRAP) to Advise and Identify Opportunities for Coordinated Monitoring Activities.

Products: Evaluation on need to establish a CB RAP, GF RAP and a JRAP.

Partners: CBNMS, GFNMS, MBNMS, NMSP, Advisory Councils

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.2: Based Upon the Evaluation in 4.1, Establish a Joint Research Activity Panel (JRAP).

Products: CBNMS RAP; GFNMS RAP, JRAP Formed by Advisory Councils.

Partners: CBNMS, GFNMS, MBNMS, NMSP, Advisory Councils, MBNMS RAP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.3: Establish Communication Protocols Among the RAPs for Posting Agendas and Minutes for Sanctuary-specific and Joint Meetings.

Product: RAP list serve.

Partners: CBNMS, GFNMS, MBNMS, SIMoN, Advisory Councils, MBNMS RAP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.4: Institute Annual Meetings for a Subgroup of (~10) Representatives from all Three Sanctuary RAPs (or Research Partners if a RAP does not exist) to Coordinate Research and Monitoring Activities in the Region.

This meeting could be conducted in coordination with an existing annual or biennial science sympoisium or information transfer meeting. The meeting would be planned and organized by the monitoring coordination team members.

Product: Meeting summaries, recommendations, joint proposals and research plans.

Partners: CBNMS, GFNMS, MBNMS, NMSP, Advisory Councils, NCCOS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Table XEM 1: Measuring Performance of the Cross-Cutting Ecosystem Monitoring Action Plan

Desired Outcome(s) For This Action Plan:	
Increased collaboration among, capacity of, and productivity of the three sanctuary monitoring programs in order to enhance our understanding of the ecosystem(s) in this region and those natural and human factors affecting them.	
Performance Measures	**Explanation**
1. Increase the number of cooperative research and monitoring activities from two in Year 1 to six in Year 5.	1. Research staff from the three Sanctuaries currently engage in limited joint research and monitoring activities. However, to improve our knowledge and understanding about the broader ecosystem in this region, the three sites need to coordinate and systematically plan and implement joint research and monitoring activities with each other and other partners. These new joint research and monitoring activities will be reflected in each sites' Annual Operating Plan (AOP).
2. Extend the geographic range of SIMoN to include Cordell Bank and Gulf of the Farallones and expand its infrastructure so that it can be integrated with other coastal and ocean observation systems along the West Coast by Year 5.	2. SIMoN is rapidly evolving into a system-wide tool for organizing and displaying research and monitoring related information. SIMoN was developed as a prototype at the MBNMS and could be expanded to include the neighboring CBNMS and GFNMS. In addition, SIMoN should evolve so that other regional coastal and ocean observation systems could be integrated within SIMoN.
3. Design and implement coordinated monitoring programs consistent with the NMSP System Wide Monitoring Program Framework (SWiM) at each site by 2010.	3. The NMSP has been working for several years to develop a System Wide Monitoring (SWiM) Program Framework. The prototype of the program is underway, and once evaluated, will be ready to implement as other sites, including the three sanctuaries.

Table XEM 2: Cross-Cutting Ecosystem Monitoring Action Plan Timeline

Ecosystem Monitoring Action Plan	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy XEM-1: Coordinate Existing Targeted Monitoring Activities to Promote Greater Efficiency and Effectiveness					
Activity 1.1: Coordinate individual Sanctuary rocky intertidal monitoring programs and investigate opportunities to collaborate with other large-scale rocky intertidal monitoring efforts.	→	→	→	→	→
Activity 1.2: Conduct a workshop coordinate data collection protocols for Beach COMBERS and Beach Watch Programs that indirectly assess the health of the pelagic/offshore ecosystem.	→				
Activity 1.3: Develop an integrated Sanctuary marine mammal and seabird survey monitoring plan for the three Sanctuaries to coordinate and supplement the NOAA Fisheries 5-year surveys.		→			
Activity 1.4: Explore the potential for the expansion of existing fish surveys, such as the CalCOFI transect lines through Gulf of the Farallones and Cordell Bank, and continuation in Monterey Bay.		→			
Activity 1.5: Jointly developed research cruise plans and standards for sampling and reporting results for benthic habitat survey work.	→	→	→	→	→
Activity 1.6: Augment the benthic habitat survey work with new technologies such as ROV surveys.	→	→	→	→	→
Strategy XEM-2: Coordinate and Implement Existing Regional Ecosystem Monitoring Activities					
Activity 2.1: Implement the West Coast Observation Project at CBNMS, GFNMS and MBNMS.	→	→	→	→	→
Activity 2.2: Develop and implement an integrated NMSP's System-Wide Monitoring (SWiM) program for CBNMS, GFNMS and MBNMS.		→	→	→	→
Activity 2.3: Conduct a needs assessment and develop a site implementation plan for expanding SIMoN to the Gulf of the Farallones and Cordell Bank Sanctuaries.	→				
Activity 2.4: Explore opportunities to integrate SIMoN with other regional monitoring efforts such as West Coast Observations and other IOOS projects.	→	→	→	→	→
Activity 2.5: Evaluate and identify ongoing funding opportunities to support regional and larger scale ongoing monitoring activities.	→	→	→	→	→
Strategy XEM-3: Establish a Joint Internal Monitoring Coordination Team					
Activity 3.1: Establish a Monitoring Coordination Team.	→				

Ecosystem Monitoring Action Plan	Year 1	Year 2	Year 3	Year 4	Year 5
Activity 3.2: Develop a research and monitoring communication plan to improve coordination among the Sanctuaries' research staffs and partners.	→				
Activity 3.3: Evaluate and Provide Recommendations on the joint reporting of monitoring activities through periodic "state of the Sanctuaries" reports for cross-cutting monitoring activities among the three Sanctuaries.			→	→	→
Activity 3.4: Develop annual ecosystem-based research and monitoring operating plans in collaboration with each other to meet site, regional, and national monitoring needs.	→	→	→	→	→
Strategy XEM-4: Consider Establishing a Joint Research Activities Panel to Enhance Research and Monitoring Collaborations					
Activity 4.1: Evaluate the need and feasibility of establishing an ad-hoc or standing joint research activities panel (JRAP) to advise and identify opportunities for coordinated monitoring activities.		→	⇢	⇢	⇢
Activity 4.2: Based upon the evaluation in 5.1, establish a Joint RAP.			→		
Activity 4.3: Establish communication protocols among the RAPs for posting agendas and minutes for Sanctuary-specific and joint meetings.			→		
Activity 4.4: Institute annual meetings for a subgroup of (~10) representatives from all three Sanctuary RAPs (or research partners if a RAP does not exist) to coordinate research and monitoring activities in the region.				→	→

Legend:

→ Planned Activity

⇢ Proposed Activity, based on internal assessment

Table XEM 3: Estimated Costs to Implement the Ecosystem Monitoring Action Plan

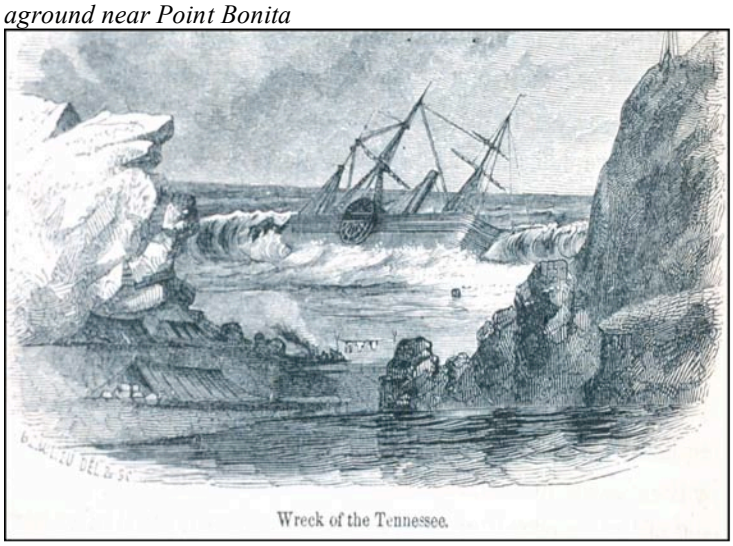
Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XEM-1: Coordinate Existing Targeted Monitoring Activities to Promote Greater Efficiency and Effectiveness	$183	$183	$183	$183	$183	$915.00
Strategy XEM-2: Coordinate and Implement Existing Regional Ecosystem Monitoring Activities	$174	$258	$294	$282	$246	$1254.00
Strategy XCEM-3: Establish a Joint Internal Monitoring Coordination Team	$24	$72	$78	$51	$27	$252.00
Strategy XEM-4: Consider Establishing a Joint Research Activities Panel to Enhance Research and Monitoring Collaborations	$0	$12	$12	$15	$15	$54.00
Total Estimated Annual Cost	***$381***	***$525***	***$567***	***$531***	***$471***	***$2475.00***
* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.						
** Contributions from outside funding sources also anticipated.						
For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.						

Maritime Heritage Action Plan

Goals

The National Marine Sanctuary Program (NMSP) is developing a new program aimed to identify, protect and raise awareness of the cultural and historical resources in the three sanctuaries. Program efforts include conducting paleo-ecological and archaeological studies; inventorying, locating, and monitoring both historic shipwrecks and those that pose an environmental threat to Sanctuary marine resources; and characterizing and protecting maritime heritage resources.

Figure MH-1: The passenger-cargo steamer Tennessee runs aground near Point Bonita



This plan provides the framework for a Maritime Heritage Resources Program that addresses historic and cultural underwater sites, as well as traditional heritage resources such as Native American and fishing communities, commercial marine transport of passengers and cargo, and recreational activities like diving, surfing, and boating. Although the NMSP only has authority to protect Sanctuary cultural and historic resources, the program recognizes that traditional user and ocean-dependent groups are interconnected with the Sanctuaries and are an integral part of their history.

Issue Description

The National Marine Sanctuaries Act (NMSA) and site regulations mandate the management and protection of Sanctuary cultural and historical resources. Cultural resources are defined as any historical or cultural feature, including archaeological sites, historic structures, shipwrecks, and artifacts. *Historical resources* are defined as any resources possessing historical, cultural, archaeological or paleontological significance, including sites, contextual information, structures, districts, and objects significantly associated with or representative of earlier people, cultures, maritime heritage, and human activities and events. Historical resources include "submerged cultural resources," and also include "historical properties," as defined in the National Historic Preservation Act (NMPA), as amended, and its implementing regulations, as amended.

The area encompassed by the Cordell Bank National Marine Sanctuary (CBNMS), the Gulf of the Farallones National Marine Sanctuary (GFNMS), and the Monterey Bay National Marine Sanctuary (MBNMS) is rich in cultural and historical resources, and has a long and interesting maritime history. The sea floor preserves remnants of the sites where people lived and of the vessels in which they conducted trade and fought wars. Ships, boats, wharves, lighthouses,

lifesaving stations, whaling stations, prehistoric sites, and a myriad of other heritage treasures lie covered by water, sand, and time.

The history of California's Central Coast is predominantly a maritime one. From the days of the early Ohlone inhabitants to the exploration and settlement of California to the present, coastal waterways remain a main route of travel, subsistence, and supply. Ocean-based commerce and industries (e.g., fisheries, shipping, military, recreation, tourism, extractive industries, exploration, research, and aesthetics) are important to the maritime history, the modern economy, and the social character of this region. These constantly changing human uses define the maritime heritage of these Sanctuaries and help interpret our evolving relationship with the Sanctuary resources. Ports such as San Francisco and Monterey, and smaller coastal harbor towns, developed through fishing, shipping, and economic exchange. Today these have become major urban areas, bringing millions of people in proximity to National Marine Sanctuaries. Many of these people are connected to the Sanctuaries through commercial and recreational activities such as surfing, boating, and diving.

Records indicate that 430 vessel and aircraft losses were documented between 1595 and 1950 along California's Central Coast from Cambria north to Bodega Head, including the Farallones Islands. Specifically, 173 in the GFNMS, 257 in the MBNMS, and none documented within the CBNMS. Some sites have been located and inventoried by the National Oceanic and Atmospheric Administration (NOAA) and the National Park Service (NPS) in the GFNMS region. The GFNMS and MBNMS have also collaborated with state and federal agencies, and the private sector to gather resource documentation and to create opportunities to locate and record submerged archaeological resources. MBNMS recently completed a shipwreck inventory from established shipwreck databases, and review of primary and secondary source documentation. These studies provide a foundation for an inventory of the historic resources in the Sanctuaries.

The GFNMS and MBNMS, and possibly CBNMS, are also faced with the challenge of identifying and monitoring historic and non-historic shipwrecks posing environmental threats to Sanctuary marine resources. Lurking in the deep are the hazardous cargoes, abandoned fuel, and unexploded ordnance inside sunken vessels that are slowly deteriorating in a corrosive marine environment. Shipwrecks already identified as a concern are the oil tanker USS *Montebello* (near the MBNMS) that may retain over three million gallons of unrefined crude oil and the C-3 freighter *Jacob Luckenbach* (GFNMS), containing Bunker-C fuel oil. In 2002, the U.S. Coast Guard contracted the removal of 85,000 gallons of Bunker-C fuel from the *Jacob Luckenbach*.

Submerged Site Inventory and Assessment Initiative

NMSP regulations mandate that archaeological resources be managed consistent with the Federal Archaeological Program. The NMSP's Marine Heritage Program (MHP) and NOAA Maritime Archeological Center (MAC) were established in 2002 and 2004 respectively to emphasize the need for research, education, outreach, and protection of maritime heritage resources. Issues to be addressed regarding the protection of submerged archaeological resources include site protection, permitting, and shipwrecks as environmental threats. GFNMS and MBNMS will partner with the Channel Island National Marine Sanctuary (CINMS) on its Shipwreck

Reconnaissance Program (SRP) in California waters to record submerged sites using vocational archaeologists, remotely operated vehicles (ROV), and manned submersibles. The SRP develops underwater site maps and archaeological reports, conducts annual site monitoring, and recommends appropriate sites for inclusion in the National Register of Historic Places.

Shipwrecks as Environmental Threats

GFNMS and MBNMS both coordinate with the Damage Assessment Restoration Fund and other relevant agencies. GFNMS and MBNMS will work with CINMS to expand their efforts to identify shipwrecks that may pose environmental threats and will provide pertinent information to NOAA's Hazardous Materials (HAZMAT) division and the NMSP for development of the Sanctuaries Hazardous Incident Emergency Logistics Database System (SHIELDS) and the Resources and Under Sea Threats (RUST) Geographic Information System (GIS) database systems.

Site Protection

As submerged shipwreck sites are inventoried in CBNMS, GFNMS, and MBNMS and become more visible to the public, they are also more at risk from divers wishing to remove artifacts. CBNMS, GFNMS, and MBNMS will consider enhancing visitor usage while mitigating damage to heritage resources by providing the sport and commercial diving communities and visitors to shoreline sites with interpretive information about archaeological sites and their protection. Sanctuary and California state regulations prohibit the un-permitted disturbance of submerged archaeological and historical resources. The NMSP and California State Lands Commission (CSLC) have an archaeological resource recovery permit system in place. Protection and monitoring of these sites will become a more pronounced responsibility in the Sanctuaries' heritage resources management program. Partnerships will be established with local law enforcement agencies for site monitoring and compliance of public access to submerged sites. The Sanctuaries will designate a contact person(s) to coordinate with the California State Historic Preservation Office (SHPO) to ensure that permit guidelines, under the Archaeological Resources Protection Act, are followed.

Traditional User and Ocean-Dependent Groups

There is the potential to cultivate partnerships with local, state, and federal programs (e.g., American Folk Life Center, universities, Department of the Interior) and the identified communities. These partnerships could aid in the design and implementation of studies of living maritime heritage and folk life to help educate the public about traditional cultures and practices including Native Americans, other ethnic residents, fishermen and economic activities reflecting historic human interaction with the ocean.

Education and Outreach

CBNMS, GFNMS, and MBNMS have partnered with CINMS in the development of the West Coast Shipwreck Database online curriculum. The database serves to inform the public about the historical significance of shipwrecks, including those posing environmental threats to Sanctuary marine resources, e.g., the *Jacob Luckenbach* story. The database is being expanded to include living journals assisting families searching for information about shipwrecked vessels

their relatives may once have served on as crewmembers or passengers. Family members are encouraged to share with the public their living journals associated with the shipwreck histories for dissemination. CBNMS, GFNMS, and MBNMS will identify partners to explore exhibit development at maritime or regional museums and learning centers that focus on the areas' maritime heritage history; shipwrecks, exploration, fishing, and fisheries; vessel trades, routes and nationalities; and shoreline structures such as lighthouses, lifesaving stations, canneries, whaling facilities, surfing, and boating.

Strategy XMHR-1: Establish Maritime Heritage Resources Program

The NMSP is placing increasing emphasis on the development of maritime heritage resources programs to identify and protect submerged archaeological sites, and to increase public awareness about the maritime history associated with individual Sanctuaries. A well-coordinated program will be required to identify and assess documented shipwrecks, some of which may pose significant environmental hazards; to protect sites from unauthorized disturbance; and to develop heritage partnerships and education programs.

Activity 1.1: Develop the foundation and infrastructure of a MHR Program.

Products: Maritime Heritage Resource (MHR) program plan and infrastructure to implement it.
Partners: CBNMS, GFNMS, MBNMS, NMSP-MHP, CINMS, SCRG

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.2: Identify and assist partners doing maritime heritage related work to obtain funding and resources.

Products: Database of partners and funding sources.
Partners: CBNMS, GFNMS, MBNMS, CINMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XMHR-2: Inventory and Assess Submerged Sites

The CBNMS, GFNMS, and MBNMS, in conjunction with the West Coast Cultural Resources Coordinator, will collaborate with state and federal agencies and the private sector to gather resource documentation and to create opportunities to locate and record submerged archaeological resources. MBNMS recently completed such an inventory; GFNMS will pursue funding to update its previous inventory (done jointly with the NPS). This effort will also be coordinated with NOAA's MHP.

Activity 2.1: Establish external partnerships to inventory potential shipwreck sites with other federal, state, and local agencies as well as vocational archaeologists, commercial divers and fishermen, and recreational divers.

Products: Updated inventory of potential shipwreck sites in the three Sanctuaries that includes site characterizations and shipwreck assessments.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, National Park Service (NPS), California State Historic Preservation Office (SHPO)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.2: Conduct systematic research and survey for archaeological sites, including the remains of prehistoric, as well as historic sites, representing ship and aircraft losses.

This effort would be based upon geographic regions with a high probability of cultural and historic remains established by conducting remote sensing surveys and/or diver investigations of target sites as part of larger research cruises across the three Sanctuaries. Such surveys would include the development of education materials and curriculum, a project website, a site assessment report, corrosion study, and a comparison with previous surveys.

Products: MBNMS survey of the USS Macon and continuing efforts to survey the Lukenbach and Montebello.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, National Park Service (NPS), California State Historic Preservation Office (SHPO)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.3: Establish a Shipwreck Reconnaissance and Site Monitoring Program.

Use a model similar to CINMS to record and monitor submerged sites and to document new artifact discoveries and evaluation of human site disturbance. Record site positions in NOAA's ARCH GIS database.

Products: Expanded site information in NOAA's ARCH.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.4: Assess and Nominate Appropriate Submerged Archaeological Sites for Inclusion in the National Register of Historic Places.

Products: Applications for site inclusion in the National Register of Historic Places.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XMHR-3: Assess Shipwrecks and Submerged Structures for Hazards

The GFNMS and MBNMS, and possibly CBNMS, are faced with the challenge of identifying and monitoring historic and non-historic shipwrecks that may pose environmental threats to Sanctuary marine resources. Information pertaining to shipwrecks as environmental threats is provided to NOAA's HAZMAT division and the Office of National Marine Sanctuaries for the development of the SHIELDS and RUST database systems. The Sanctuaries will develop a plan to address this issue since there are many shipwrecks that pose threats in the near future.

Activity 3.1: Establish an inventory of shipwrecks, inside and outside of Sanctuary boundaries, posing environmental threats to Sanctuary marine resources.

This inventory is based upon primary and secondary source documentation from established shipwreck databases, interviews with commercial divers and fishermen, and recreational divers who frequently visit submerged shipwrecks. The Sanctuaries will also collaborate with other organizations doing similar research. As the Sanctuaries compile information regarding sites that may pose environmental threats, this information will be coordinated with NOAA's HAZMAT division and the Office of National Marine Sanctuaries for the development of the SHIELDS and RUST database systems.

Products: Inventory of sites that may pose environmental threats, including a priority listing of shipwreck sites to be located via reconnaissance dives. Evaluation reports on sites submitted to federal and state trustee agencies for potential remediation.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NOAA HAZMAT, NOAA ORR, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.2: Establish a monitoring program for shipwreck sites.

Develop protocols for site evaluation, including timelines for long-term monitoring. Direct efforts to monitor sites that have been located and are considered a threat to Sanctuary marine resources based on the monitoring work at such sites as the *Jacob Luckenbach* and the *Montebello*.

Products: A shipwreck monitoring plan.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.3: Coordinate with partners to reduce threats.

GFNMS and MBNMS will work with NMSP to expand efforts to identify shipwrecks that may pose environmental threats and will provide pertinent information to NOAA's HAZMAT division and the NMSP for the development of the SHIELDS and RUST GIS database systems. Shipwrecks identified as a potential threat to leak or spill hazardous waste will be regularly monitored, and NMSP will work with other trustee agencies to develop a plan to prevent, reduce, and respond to environmental threats from these vessels.

Products: A threat mitigation plan.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NOAA HAZMAT, NOAA ORR, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.4: For historic shipwrecks, ensure compliance under Section 106 of the National Historic Preservation Act (NHPA) and the National Marine Sanctuary Act (NMSA).

Products: Final Reports of Post Site Disturbance Documentation and/or Archaeological Site Reports submitted to the SHPO.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NOAA HAZMAT, NOAA ORR, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XMHR-4: Protect and Manage Submerged Archaeological Resources

The NMSP regulations mandate that archaeological resources be managed consistent with the Federal Archaeological Program. The NMSP's Maritime Heritage Program (MHP) and Maritime Archeology Center (MAC) were established in 2002 and 2004 respectively to emphasize the need for research, education, outreach, and protection of heritage resources. Issues to be addressed by GFNMS, MBNMS, and possibly CBNMS, regarding the protection of submerged archaeological resources include:

- Permitting
- Site protection through enforcement and education
- Shipwrecks as environmental threats

Activity 4.1: Jointly develop uniform protocol to manage, monitor, and protect submerged sites within the three Sanctuaries in partnership with appropriate local law enforcement agencies.

Products: Monitoring and permitting protocols, enforcement surveillance and inspection program as appropriate, mooring system plan if needed at dive sites.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO, NOAA Office of Law Enforcement (OLE)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.2: Provide training to Sanctuary staff and facilitate training for partners.

The training will focus on the importance of submerged archaeological resources and the need and tools to manage and protect them.

Products: A comprehensive training program.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO, NOAA Office of Law Enforcement (OLE)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.3: Identify archaeological and historic resources currently outside Sanctuary boundaries that may be of significant historic interest or may pose a threat to Sanctuary resources.

Explore the appropriateness, feasibility and need to (1) consider expanding existing boundaries to protect site(s) as maritime heritage resources or (2) work with the state to establish a state marine cultural preservation area (e.g., the USS *Montebello*, 1.6nm south of the MBNMS near Cambria, others to be determined).

Products: Site assessments and recommendations for preservation and/or protection.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XMHR-5: Conduct Public Outreach with Traditional User and Ocean-Dependent Groups and Communities

A key aspect of the CBNMS, GFNMS, and MBNMS maritime heritage program will be to educate the public about traditional maritime cultures and practices including Native Americans; exploration; settlement; ethnic groups; whalers; historic and present-day fishermen; recreational uses; and traditional shipping, shipbuilding, canneries, and other economic activities reflecting historic human interaction with the ocean. Although Sanctuary protection status is given only to cultural and historical resources, the program recognizes that traditional user and ocean-dependent groups are interconnected with the Sanctuaries and are an integral part of their history. Therefore, this program will also acknowledge those traditional maritime heritage activities and

practices consistent with the NMSA's primary goal of resource protection, such as sustainable fishing methods and recreational uses.

Activity 5.1: Identify traditional user and ocean-dependent groups.

Solicit and document the range of traditional user and ocean-dependent groups' ideas, values, etc. Conduct a literature search to gather resource documentation on traditional users and ocean-dependent groups and communities. Use this information to prioritize appropriate aspects of their maritime heritage.

Product: Sanctuary user groups and community historic analysis.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 5.2: Develop collaborative programs and initiatives.

GFNMS will initiate a partnership with the fishing community at Pillar Point Harbor to enhance relationships and jointly develop ways to educate the public on the interconnections with the three Sanctuaries.

Products: Pillar Point maritime heritage community demonstration initiative. Collaborative programs such as sustainable seafood events, adopt-a boat classroom programs (e.g., SEA Grant-Marine program), historic re-enactments at harbors, Native American village sites.

Partners: CBNMS, GFNMS, MBNMS, San Mateo County Harbor District – Pillar Point, Half Moon Bay Fishermen's Association, CA Sea Grant

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 5.3: Create an inventory of historic and present maritime heritage communities.

Focus on traditionally associated people to support mapping and interpretive programs. Assess and nominate appropriate sites for the National Register of Historic Places.

Products: Database inventory of maritime heritage communities and sites; nominations for the National Register of Historic Places.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 5.4: Map and document traditional communities and sites.

These communities and sites may include fishing and whaling sites; shipping/commercial marine transport of passengers and cargo; lighthouses and life-saving stations; tribes (coastal); and recreational uses such as surfing and diving.

Products: Tri-Sanctuary map of traditional communities and sites.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Strategy XMHR-6: Establish Maritime Heritage Focused Education and Outreach Programs

Maritime Heritage provides a unifying theme to educate and inform people along the California coast and throughout the country about the historic human interaction with the ocean. Through websites, museum exhibits, and other tools, the Sanctuaries will provide information on:

- Programs by and about traditional cultures and practices including Native Americans, ethnic groups, fishermen, and economic activities
- Shipwrecks, exploration, fishing and fisheries; trade vessels, routes and nationalities
- Shoreline structures such as lighthouses, life-saving stations, canneries, whaling facilities
- Traditional recreational activities such as diving, surfing, and boating
- Stewardship of our cultural and historic maritime resources

Activity 6.1: Improve information sharing and dialogue.

Hold an annual maritime heritage event to highlight specific cultural and historic resources that the sites are mandated to protect, such as archeological sites, shipwrecks, etc., and link to adjacent communities and human uses.

Product: Annual community event focusing on maritime heritage resources.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO, local maritime museums and historic parks

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 6.2: Create, expand and populate individual Sanctuary websites and/or the West Coast Shipwreck Database.

The websites should include specific information about maritime heritage resources, such as living journals of traditional users and ocean-dependent groups as well as shipwreck survivors, archaeological project updates, potential environmental threats, and maps.

Products: Expanded maritime heritage Web-based information.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 6.3: Develop and implement education and outreach programs and materials for the Maritime Heritage Program.

Incorporate traditional users/ocean-dependent groups and submerged archaeological resources into existing and new education/outreach programs.

Products: Maritime heritage programs, brochures, posters, etc.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO, local maritime museums and historic parks.

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 6.4: Collaborate on maritime heritage resource exhibits and signage.

GFNMS and MBNMS are currently collaborating on a joint interpretive exhibit at Pigeon Point Lighthouse in San Mateo County. The three sites will incorporate maritime heritage themes and messages as part of the California Statewide Signage, Exhibits, and Facilities plan.

Products: Joint interpretive exhibits at Pigeon Point Lighthouse and other locations, joint signage, and joint public lecture series.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO, local maritime museums and historic parks

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Table XCMHR 1: Measuring Performance of the Maritime Heritage Resources Action Plan

Desired Outcome(s) For This Action Plan:	
Establish a well-coordinated joint maritime heritage program that identifies and assesses documented shipwrecks and associated environmental hazards; protects sites from unauthorized disturbance; and develops heritage partnerships and education programs.	
Performance Measures	**Explanation**
By Year 5, the Maritime Heritage program will identify and characterize all historical and cultural resources in these three Sanctuaries in a Web database and, when appropriate, develop plans to protect these resources from threats. In the case of ships that pose a threat from oil spills, plans will be developed to mitigate harmful effects on natural resources.	The specific maritime heritage activities identified in this plan build upon existing site efforts and collectively establish a new joint maritime heritage program for this region. The program will allow these sites to be responsive to the NMSA mandate to identify and protect cultural and historic resources. Implementation of these strategies will better streamline and coordinate overall NMSP efforts to protect maritime heritage resources and expand awareness of the importance of these resources to the public.

Table XCMHR 2: Estimated Costs to Implement the Cross-Cutting Maritime Heritage Resources Action Plan

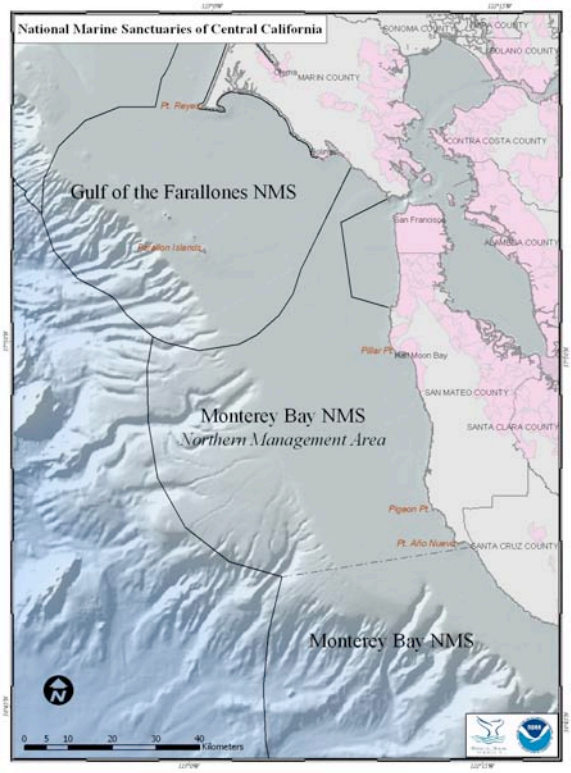
Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XMHR-1: Establish Maritime Heritage Resources Program	$55.5	$55.5	$0	$0	$0	$111
Strategy XMHR-2: Inventory and Assess Submerged Sites	$81	$81	$72	$72	$72	$378
Strategy XMHR-3: Assess Shipwrecks and Submerged Structures for Hazards	$0	$0	$51	$51	$51	$153
Strategy XMHR-4: Protect and Manage Submerged Archaeological Resources	$0	$0	$0	$24	$24	$48
Strategy XMHR-5: Conduct Public Outreach with Traditional User and Ocean-Dependent Groups and Communities	$39	$39	$58.5	$58.5	$58.5	$253.5
Strategy XMHR-6: Establish Maritime Heritage Focused Education and Outreach Programs	$61.5	$61.5	$64.5	$64.5	$64.5	$316.5
Total Estimated Annual Cost	***$237***	***$237***	***$246***	***$270***	***$270***	***$1,260***
* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.						
** Contributions from outside funding sources also anticipated.						
For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.						

Northern Management Area Transition Action Plan

Goal

The goal of the Northern Management Area (NMA) Transition Plan is to identify specific strategies and activities that would implement a National Marine Sanctuary Program (NMSP) decision to transfer administrative and management authority in the northern management area of the Monterey Bay National marine Sanctuary (MBNMS) to the Gulf of the Farallones national marine Sanctuary (GFNMS).

Figure 1: Northern Management Area



Issue Description

The Northern Management Area Transition Plan is the outcome of a process to resolve the "MBNMS-GFNMS boundary" issue. Resolution of this shared boundary issue was identified as a priority within the Joint Management Plan Review (JMPR) public scoping meetings and the Sanctuary Advisory Council prioritization process. The NMSP established an internal working group to develop recommendations on how to address this issue. The NMSP solicited public comments and held a joint Advisory Council meeting to discuss the recommendation. At the conclusion, the NMSP determined that the Gulf of the Farallones would assume full administrative and management responsibilities of the area extending from the San Mateo/Santa Cruz County line northward to the existing boundary between the Monterey Bay and Gulf of the Farallones Sanctuaries, though the existing legal Sanctuary boundaries remain the same. For convenience, this area is informally referred to as the Northern Management Area (NMA) (see Figure 1).

Northern Management Area (NMA) Administration & Operations

Administration and operations are the specific staffing, facilities, vessels, and procedural elements that are needed to effectively manage a site or area. Most of the specific activities associated with transferring the office administration, expanding the existing office, and hiring new staff have already been completed and are not included here.

Strategy XNAO-1: Create a Multi-Functional HMB Regional Office.

Activity 1.1: Expand the existing the Half Moon Bay (HMB) office, or relocate to a new location.

Products: New multi-purpose office, ideally along Pillar Point Harbor to provide a multi-purpose facility (district staff office, space for volunteers/interns, accessible and visible visitor center, public meeting space).

Partners: Gulf of the Farallones National Marine Sanctuary (GFNMS), Monterey Bay National Marine Sanctuary (MBNMS), San Mateo Harbor District

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
None	None

Strategy XNAO-2: Evaluate the Delivery and Success of NMSP Programs and Services in the NMA

Activity 2.1: Conduct an evaluation of the delivery and success of NMSP programs and services to local communities in the NMA.

Products: Analysis of success using performance measures that have been established to measure the delivery and effectiveness of NMSP programs and services to local communities in the NMA.

Partners: Transition Team, GFNMS, MBNMS & HQ staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	AD-6.2 & AD-6.3

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Northern Management Area (NMA) Resource Protection

Resource protection encompasses several program areas and includes a diverse range of management issues. The overall goal for resource protection in the NMA is to maintain a high level of protection for Sanctuary resources in this area by creating a resource protection team that works collaboratively and capitalizes on the strengths and expertise of individual staff, regardless of which site they are located in. GFNMS staff will take the lead on most resource protection issues originating in the NMA, except for water quality issues, which will continue to be overseen by MBNMS. However, the MBNMS regulations will continue to apply in this area and any policy development, permits, authorizations or other significant actions must be closely coordinated with appropriate MBNMS staff. Though the actual issue and expertise of staff will factor into who ultimately works on an issue, the following protocol provides a general guideline:

- Issue primarily located in MB and straddles NMA (e.g., Shoreline Armoring): MBNMS staff takes the lead and coordinates with GFNMS staff.
- Issue primarily located in GF and straddles NMA (e.g., Lukenbach Spill/Clean-up): GFNMS staff takes the lead and coordinates with MBNMS staff.
- Issue only located in NMA (e.g., Mavericks Tow-in Surfing): GFNMS staff takes the lead and coordinates with MBNMS staff.

When addressing specific resource protection issues, Sanctuary managers often seek advice and recommendations from their respective Advisory Councils. The following protocols provide general guidance as to how the Advisory Councils will be involved on issues affecting the NMA.

- Primarily in the MBNMS and straddles the NMA: Issue first goes to the MBNMS Advisory Council for action. Their recommendations are forwarded to the GFNMS Advisory Council for comment and action.
- Primarily in the GFNMS and straddles the NMA: Issue first goes to the GFNMS Advisory Council for action. Their recommendations are forwarded to the MBNMS Advisory Council for comment and action.
- Only in the NMA: Issue first goes to the GFNMS Advisory Council for action. Their recommendations are forwarded to the MBNMS Advisory Council for comment and action.

If there are fundamental differences in the recommendations between the Advisory Councils, a joint working group will be formed to resolve the differences. If no resolution can be reached, the separate recommendations from the Advisory Councils will be forwarded to the Sanctuary managers, who will consider both recommendations before making a decision.

Strategy XNRP-1: GFNMS Will Be Responsible for Permit Activities in the NMA

Activity 1.1: GFNMS will process permits within the NMA, except for water quality permits, which will continue to be overseen by MBNMS.

Products: Permit review, processing and issuance in the NMA.

Partners: GFNMS and MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	RP-5

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 1.2: GFNMS staff will take the lead in considering the development of protocols for a Special Use Permit for tow-in surfing at Mavericks as envisioned in the MBNMS revised management plan and coordinate such proposed actions with MBNMS staff.

Products: Consideration and development of a Special Use Permit program for Mavericks, education materials and training program, and enforcement strategy.

Partners: GFNMS and MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-9, MPWC-3, MPWC-4, MPWC-5
GF	RP-5

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRP-2: GFNMS Will Be Responsible for Regulatory Activities in the NMA While Maintaining Maximum Consistency and Protection to Sanctuary Resources

Activity 2.1: GFNMS staff will take the lead in evaluating a potential new dredge disposal site for Pillar Point Harbor should a detailed site proposal be developed by the San Mateo County Harbor District for submission to federal and state agencies.

Such an action would require changing the MBNMS regulations and designation document and require coordination with the MBNMS staff, and approval from the MBNMS Superintendent.

Products: Assessment and recommendation regarding any new dredge disposal site proposal; possible change to the MBNMS regulations and designation document.

Partners: GFNMS & MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	HDD-2.3 & OA-11.1(c)

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 2.2: GFNMS staff will facilitate a public process in the next five years to consider whether the San Francisco Exemption Area (a.k.a. "the donut hole") should be incorporated into the MBNMS.

Such an action would require changing the MBNMS regulations and designation document and require coordination with MBNMS staff, and approval from the MBNMS Superintendent.

Products: Assessment and recommendation on whether to include this area in the MBNMS. This could result in a change to the MBNMS regulations and designation document.

Partners: GFNMS and MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
None	None

Activity 2.3: The GFNMS and MBNMS Resource Protection Teams will closely coordinate on any future proposed regulatory changes that could impact the NMA or the other Sanctuaries.

Products: Potential regulatory modifications.

Partners: GFNMS and MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-12
GF	RP-4

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRP-3: GFNMS Staff will Coordinate Existing and Emerging Resource Protection Issues in the NMA

Activity 3.1: GFNMS staff will lead efforts to coordinate and implement JMPR site-specific activities to support resource protection and stewardship in the NMA and the delivery of services and programs to local communities.

Products: Implement JMPR resource protection strategies and activities.

Partners: GFNMS and MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-12, HDD-1, 3-5; DESAL-1-5; CA-1-4; SC-1, 2; BH-1-7; FER-1-7; Ei-1-3; IS-1-5; SMPA-1-11; MMST-1-4; MPWC-1-4; TP-1-7
GF	RP-1-5; FA-1-6; GF-7; IS-1-9; EP-1-3; WD-1-6

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 3.2: GFNMS staff will lead efforts to consult and coordinate on resource protection issues with other local, state and federal resource management agencies in the NMA.

Staff will also work with these agencies and other partners to implement specific resource protection strategies and activities identified in the JMPR.

Products: Implemented JMPR resource protection strategies and activities.

Partners: GFNMS and MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-12
GF	AD-5, RP-4, RP-5

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRP-4: GFNMS Staff will Coordinate Enforcement Activities in the NMA

Activity 4.1: GFNMS staff will oversee the planning and implementation of all NMA enforcement activities in the NMA and will coordinate with MBNMS to ensure consistency across the sites.

Products: Enforcement cases investigated. Surveillance activities. Updated Enforcement plan.

Partners: GFNMS & MBNMS resource protection staff, MBNMS Enforcement Officer and the National Oceanic and Atmospheric Administration-Office of Law Enforcement (NOAA-OLE).

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	PR-6 and scattered throughout GFNMS Management Plan (MP)

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRP-5: GFNMS Staff will Coordinate NMA Emergency Response Activities in the NMA

Activity 5.1: GFNMS staff will lead and closely coordinate efforts to respond to emergencies in the NMA to ensure maximum resource protection to Sanctuary resources.

Products: Communication strategy that recognizes site-specific and regional emergency response plans.

Partners: GFNMS and MBNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	RP-7, RP-8, VS-7, VS-8
MB	OA-5 & XAO-4.3 (scattered throughout JMPR)

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRP-6: MBNMS Water Quality Protection Program Staff Will Continue to Coordinate Water Quality Activities in the NMA

Activity 6.1: Implement existing Water Quality Protection Program (WQPP) activities.

MBNMS WQPP staff will continue to implement water quality activities (planning, implementation of management measures, partnership and stakeholder coordination, monitoring and outreach) in the NMA and regularly communicate with GFNMS staff to enhance understanding of the activities underway.

Products: WQPP Plans implemented in the NMA. New GFNMS WQPP assessment completed.

Partners: MBNMS WQPP staff and GFNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	RP-7, RP-8, VS-1-13; WQ-2, 3, 5, 6, 9
MB	BC-1-10; CS-1-4; MOA-1-3; WQPP-1-23OA-5 & XAO-4.3 (scattered throughout JMPR)

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 6.2: Conduct site water quality needs assessment.

MBNMS has hired a new regional WQPP specialist who will be assigned to work with GFNMS staff (and other West Coast Sanctuary staff) on their specific needs and threats, and assess how existing MBNMS water quality programs or processes could be translated or modified to meet those needs, or whether new programs should be developed. Once these assessments are done, the new WQPP regional specialist will assist the sites in designing the appropriate plans and building site capacity for implementation, drawing on individual MBNMS subject matter staff where possible. Note that this new water quality position is not focused on the NMA specifically, but on providing assistance to all West Coast Sanctuaries, including the GFNMS. However, opportunities for regional approaches that could benefit the NMA will also be pursued.

Products: New Regional WQPP staff member. Site-by-site needs assessment.

Partners: MBNMS WQPP staff and GFNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	RP-7, RP-8, VS-1-13; WQ-2, 3, 5, 6, 9
MB	BC-1-10; CS-1-4; MOA-1-3; WQPP-1-23OA-5 & XAO-4.3 (scattered throughout JMPR)

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 6.3: Review and issue water quality authorizations.

MBNMS staff will continue to review water quality permits in the NMA, and issue authorizations with appropriate conditions to minimize impacts as outlined in the MBNMS water quality MOA. MBNMS staff will coordinate with and seek input from GFNMS staff in reviewing these permits.

Products: Permit and authorization review and issuance

Partners: MBNMS WQPP staff and GFNMS resource protection staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	MOA-1 to MOA-3, XNRP-1

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Northern Management Area (NMA) Research and Monitoring

The GFNMS Research Coordinator will be the lead on most research and monitoring projects and programs in the NMA. The Research Coordinator will work closely with the MBNMS and CBNMS Research Coordinators to ensure that the projects are integrated and coordinated. One of the overall goals for research and monitoring in the NMA, and more broadly across the region is to capitalize on the strengths and expertise of individual staff regardless of their site location. As such, staff from either site may be requested to consult or work on research and monitoring projects in the NMA based on their area of expertise. For example, if a proposed research project in the NMA involves rocky intertidal issues, then those MBNMS staff with expertise and experience on these issues would be involved. Likewise, if there were an issue where GFNMS staff had more experience (e.g., seabirds or marine mammals) then they would be involved. There are many research and monitoring projects already being implemented by both sites in the NMA and many more issue-based projects that could be jointly or separately implemented. The research staff from the two sites will continue to discuss opportunities for collaborative implementation of these programs and activities.

Though the actual issue and expertise of staff will factor into who ultimately works on a research and monitoring issue, the following protocol provides a general guideline:

- Issue primarily located in the MBNMS and straddles the NMA (e.g., SIMoN): the MBNMS staff takes the lead and coordinates with the GFNMS staff.
- Issue primarily located in the GFNMS and straddles the NMA (e.g., seabird monitoring): the GFNMS staff takes the lead and coordinates with the MBNMS staff.

- Issue only located in the NMA (e.g., Wildlife Disturbance monitoring near Pillar Point): the GFNMS staff takes the lead and coordinates with the MBNMS staff.

When addressing some research and monitoring issues, Sanctuary managers may seek advice and recommendations from their respective Advisory Councils. The following protocols provide general guidance as to how the Advisory Councils will be involved on research and monitoring issues affecting the NMA.

- Primarily in the MBNMS and straddles the NMA: Issue first goes to the MBNMS Advisory Council for action. Their recommendations are forwarded to the GFNMS Advisory Council for comment and action.
- Primarily in the GFNMS and straddles the NMA: Issue first goes to the GFNMS Advisory Council for action. Their recommendations are forwarded to the MBNMS Advisory Council for comment and action.
- Only in the NMA: Issue first goes to the GFNMS Advisory Council for action. Their recommendations are forwarded to the MBNMS Advisory Council for comment and action.

If there are fundamental differences in the recommendations between the Advisory Councils, a joint working group will be formed to resolve the differences. If no resolution can be reached, the separate recommendations from the Advisory Councils will be forwarded to the Sanctuary managers, who will consider both recommendations before making a decision.

Strategy XNRM-1: Share Information

Activity 1.1: Develop and implement procedures for sharing information on existing research and monitoring projects and coordinate on future projects.

Products:

- Briefings on select existing projects, for example:
  - Rocky intertidal monitoring
  - Beached bird survey
  - SIMoN
  - Ecosystem dynamics study/pelagic monitoring
  - Trustee restoration projects (Rhinoceros Auklet)
  - Black abalone withering foot study
  - Elephant seal database
- Conduct an annual Coordinators' meeting to identify and plan joint research projects among the sites. These should be included in each site's Annual Operating Plan (AOP).
- Develop a Research & Monitoring Communication Plan.

Partners: Cordell Bank National Marine Sanctuary (CBNMS), GFNMS, MBNMS, & Sanctuary Integrated Monitoring Network (SIMoN) Research Personnel

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
	XEM-1 to XEM-3, XAO-1.2, XAO-2.1, XAO-2.2

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRM-2: Coordinate Research and Monitoring Information Dissemination

Activity 2.1: Update, cross-link, and develop Web products for GFNMS, MBNMS and SIMoN websites.

Products: Update site characterization, research and monitoring content on website, cross-link existing studies, maps, and data that apply to the NMA.

Partners: GFNMS & MBNMS Research and IT Personnel

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
	XEM-1 to XEM-3, XNEO-3

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRM-3: Collaborate on Sanctuary Advisory Committees and Working Groups on Research and Monitoring Issues Related to the NMA

Activity 3.1: Assess current and future NMSP participation on technical advisory committees or working groups in the NMA (such as Fitzgerald Marine Reserve, MBNMS RAP).

Based upon the technical needs of the group, determine who is the most appropriate staff person to participate in the group. There may be instances when it is appropriate to have more than one NMSP research staff on the committee, depending upon the needed expertise.

Products: Inventory of staff participation in external research and monitoring technical advisory panels. As necessary, update staff expertise and assignment inventory.

Partners: CBNMS, GFNMS & MBNMS Research Personnel

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
	XEM-1

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRM-4: Collaborate on Volunteer Monitoring Efforts Related to the NMA

Activity 4.1: Continue efforts to coordinate and collaborate Beach Watch and Beach COMBERS volunteer monitoring programs.

Products: Continue to share annual reports. Continue to communicate unusual mortality and oil/HAZMAT incidences.

Partners: CBNMS, GFNMS & MBNMS Research Personnel and volunteer coordinators

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-4
GF	RE-1, WD-2, IS-5

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNRM-5: Implement JMPR Site-Specific Research and Monitoring Activities in the NMA

Activity 5.1: The GFNMS and MBNMS Research Teams will coordinate on the implementation of JMPR site-specific and cross-cutting ecosystem research and monitoring activities in the NMA.

Products: Coordinate efforts to implement specific research and monitoring projects based on a Joint Research and Monitoring Annual Operating Plan.

Partners: GFNMS and MBNMS research staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	RE-7-9, 10
GF	RP-7, RP-8, VS-7, VS-8; FA-1-6; IS-1-5; VS-5; RE-1, 2; WD-1-3; WQ-8
MB	BC-1-4; CA-1, 2; BH-2-5; DESAL-2, 4; EI-1,2; FER-2, 3, 5, 7; HDD-2, 3, 5; IS-1-3; MMST-2,4-7; SC-1-3, 5, 6; OA-2, 5; TP-1; WQPP-8, 9, 19; & XAO-4.3 (scattered throughout JMPR)

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Northern Management Area (NMA) Education and Outreach

GFNMS education staff will be the lead on education programs in the NMA and will will ensure that the MBNMS Education Coordinator is informed about all education activities taking place in the NMA. One of the overall goals for education and outreach in the NMA, and more broadly across the region, is to capitalize on the strengths and expertise of individual staff regardless of their site location. As such, staff from either site may be requested to consult on projects in the NMA based on their area of expertise. There are many education, outreach and volunteer programs already being implemented by both sites in the NMA and many more issue-based programs that could be jointly or separately implemented. The education staff from the two sites will continue to discuss opportunities for collaborative implementation of these programs and activities.

Though the actual issue and expertise of staff will factor into who ultimately works on an education or outreach issue, the following protocol provides a general guideline:

- Issue primarily located in the MBNMS and straddles the NMA (e.g., MERITO multi-cultural education): the MBNMS staff takes the lead and coordinates with the GFNMS staff.

- Issue primarily located in the GFNMS and straddles the NMA (e.g., Sanctuary Explorers Summer Camp): the GFNMS staff takes the lead and coordinates with the MBNMS staff.
- Issue only located in the NMA (e.g., Pillar Point outreach): the GFNMS staff takes the lead and coordinates with the MBNMS staff.

When addressing some education and outreach issues, Sanctuary managers may seek advice and recommendations from their respective Advisory Councils. The following protocols provide general guidance as to how the Advisory Councils will be involved on education and outreach issues affecting the NMA.

- Primarily in the MBNMS and straddles the NMA: Issue first goes to the MBNMS Advisory Council for action. Their recommendations are forwarded to the GFNMS Advisory Council for comment and action.
- Primarily in the GFNMS and straddles the NMA: Issue first goes to the GFNMS Advisory Council for action. Their recommendations are forwarded to the MBNMS Advisory Council for comment and action.
- Only in the NMA: Issue first goes to GFNMS Advisory Council for action. Their recommendations are forwarded to the MBNMS Advisory Council for comment and action.

If there are fundamental differences in the recommendations between the Advisory Councils, a joint working group will be formed to resolve the differences. If no resolution can be reached, the separate recommendations from the Advisory Councils will be forwarded to the Sanctuary managers, who will consider both recommendations before making a decision.

Strategy XNEO-1: Transfer, Establish and Implement School Programs in the NMA

Activity 1.1: Coordinate and implement both GFNMS and MBNMS classroom activities (i.e., Oceans Week, etc.) to promote a greater awareness of the Sanctuaries in schools.

Products: Six classroom presentations per year.

Partners: GFNMS, MBNMS, Farallones Marine Sanctuary Association (FMSA) education staff, Cabrillo School District, Pescadero School District, other San Mateo County schools

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-5, MERITO-1 to MERITO-3, others within various issues
GF	ED-1 to ED-6 & XCO-3

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 1.2: Establish a Sanctuary education group comprised of teachers and other marine educators/communicators to share information and ideas.

Products: A periodic compilation of suggestions for new/expanded school programming.

Partners: GFNMS, MBNMS, CBNMS education staff, San Mateo, San Francisco, Marin, and Sonoma County schools, Advisory Council members, informal marine educators

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	MB OA-3.2, MERITO-2
GF	ED-1 & ED-4

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 1.3: Expand the LiMPETS student monitoring program by identifying more potential locations along the NMA coastline and providing training to teachers and students.

Products: Student monitoring data – rocky intertidal, sand crab.

Partners: GFNMS, MBNMS, FMSA education staff, Cabrillo School District, Pescadero School District, other San Mateo County Schools

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-4 and TP-2
GF	ED-1 to ED-6, WD-2

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 1.4: Identify and pursue partnerships and funding opportunities to expand the MBNMS MERITO Program to the NMA.

Products: Watershed Activity Guide, Marine Conservation Kits, train-the-trainers workshops, weekly outings for after-school programs, kayak days, tidepool days, hiking days, PSA (Spanish/English), webpage updates.

Partners: GFNMS, FMSA education staff, MBNMS Multicultural Education for Resource Issues Threatening Oceans (MERITO) staff, Cabrillo School District, Pescadero School District, other San Mateo County schools, Pescadero Conservation Alliance, Boys & Girls Club, California State Parks

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	MERITO-1 to MERITO-6

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNEO-2: Develop and Implement Community Outreach and Stewardship Programs

Activity 2.1: Represent the NMSP at local fairs and community events.

Products: Joint traveling displays at such events as the Half Moon Bay Dream Machines (Fly-In) Bay Area Paddle Fest, Toast to the Coast, and the Pigeon Point Lighthouse annual lighting celebration for GFNMS, MBNMS, and CBNMS.

Partners: NMSP, GFNMS, MBNMS and CBNMS education staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	ED-7

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 2.2: Develop and implement a lecture series for the NMA, consistent with lecture offerings in GFNMS and MBNMS.

The initial series may focus on lighthouses of the sanctuaries and historic maritime commerce of the coast.

Products: Six lectures per year.

Partners: GFNMS/MBNMS/CBNMS education staff, FMSA, and other resource agencies

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
GF	ED-8

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 2.3: Coordinate and enhance citizen volunteer opportunities, including Beach Watch and Snapshot Day/First Flush to support resource protection objectives.

Products: Volunteer cross-trainings; expansion of NMA volunteer opportunities.

Partners: GFNMS, MBNMS, CBNMS education staff, FMSA, other resource agencies

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-4
GF	ED-7, IS-5, WD-2, WD-4

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNEO-3: Develop and Disseminate Outreach Materials in the NMA

Activity 3.1: Disseminate existing GFNMS and MBNMS materials throughout the NMA.

Products: Distribution of existing education and outreach materials at select locations throughout the NMA.

Partners: GFNMS, MBNMS education staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	varies by issue
GF	ED-10 to ED-14

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 3.2: Prepare and submit periodic articles on NMA issues for local and regional newsletters and other sanctuary publications.

Products: Four-six articles/year.

Partners: GFNMS, MBNMS education staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-5.11
GF	WD-6 and ED-11

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 3.3: Coordinate the development of maps for use by GFNMS, MBNMS and CBNMS, including a bathymetric map of the north-central California Sanctuaries and a GIS map of the three with all sanctuary offices, anchorages/safe harbors and wildlife viewing.

Products: Bathymetric map and GIS map of CBNMS/GFNMS/MBNMS.

Partners: GFNMS, MBNMS, CBNMS staff, FMSA, MBNMSF

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA-5.10
GF	ED-11

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 3.4: Engage the community and user groups on how best to involve and inform them about issue-specific resource management issues (i.e., Mavericks, water quality, San Francisco exemption area).

Products: Community workshops, brochures, displays, website content.

Partners: GFNMS, MBNMS subject matter staff

Cross-Reference: Varies by issue and site

Activity 3.5: Develop NMA–related links between GFNMS and MBNMS websites. Explore options for Internet collaboration beyond the NMA to strengthen relationships with the Internet-savvy San Francisco Bay Area population.

Products: GFNMS and MBNMS websites that contain information and links to the NMA; expanded joint Web products.

Partners: GFNMS, NMSP, MBNMS Web staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	OA5.10
GF	ED-11), XNRM-2, & NMA Decision Document

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNEO-4: Implement JMPR Site-Specific Education and Outreach Activities in the NMA

Activity 4.1: The GFNMS and MBNMS Education Teams will coordinate on the implementation of JMPR site-specific education and outreach activities in the NMA.

This will be accomplished by exploring opportunities to work proactively with local communities and tapping into existing education and outreach networks (civic groups,

environmental organizations, etc.). The teams will link the NMA with efforts to increase awareness of the sanctuaries to communities throughout the greater San Francisco Bay region.

Products: Implementation of JMPR education and outreach strategies and activities within the NMA, the greater SF Bay area, and beyond.

Partners: GFNMS and MBNMS education staff

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
CB	ED-1-10, 12, 13; VS-9; PC-3
MB	CA-3; HDD-5; OA-6, 10, 11; BH-7; IS-2, MPA-8, FER-1-5; IF-1,3,4; MERITO-1-7; BC-3,4,6,7; CS-2,4; WQPP-1-3,6-11,13,15,16,18-21; MMST-1-8' MPWC-3; TP-1,2,5; OA-2
GF	ED-1-8, 11; IS-5, 9; WD-2, 4-6; FA-5; WQ-2,9; ED-14; VS-9

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Strategy XNEO-5: Pursue Collaborative Opportunities for Interpretive Signage and Facilities in the NMA

Activity 5.1: Develop collaborative partnerships to create and install interpretive signage in the NMA as part of the long-range California-wide Sanctuaries Interpretive Signage Plan.

Products: 12 trailside signs, 6-8 rail/post mounted signs, 2 large kiosks.

Partners: GFNMS, MBNMS education staff, California State Parks, San Mateo Coast Natural History Association, San Mateo County Harbor District, San Mateo County Parks, Half Moon Bay Parks and Recreation

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	IF-1 to IF-3
GF	ED-9, ED-12, ED-13

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Activity 5.2: Complete development, fabrication, and installation of collaborative interpretive exhibit at Pigeon Point Light Station in partnership with California State Parks, MBNMS, and the San Mateo Coast Natural History Association.

Key themes for interpretation include the maritime history of the area, the establishment of the lighthouse, life and commerce along the coast, and the natural history of sanctuary waters and resources.

Products: Interpretive exhibits on the lighthouse, sanctuaries, and natural history of the area.

Partners: GFNMS/MBNMS/CBNMS education staff, California State Parks, San Mateo Coast Natural History Association, Pigeon Point Hostel, Pigeon Point Environmental Education Program

Cross-Reference:

Sanctuary	Management Plan Strategy Reference
MB	IF-1.6
GF	ED-13

CB (Cordell Bank); GF (Gulf of the Farallones); MB (Monterey Bay)

Table XCN 1: Measuring Performance of the Cross-Cutting Northern Management Area Transition Plan

Desired Outcome(s) For This Action Plan:	
Transfer management responsibilities in the NMA from MBNMS to GFNMS in a manner that enhances protection for sanctuary resources and the delivery of programs and services to local communities.	
Performance Measures	**Explanation**
By Year 5, 100% of the resource protection, education and research activities identified in this plan are fully implemented.	1. The transfer of management responsibilities from MBNMS to GFNMS in the NMA will be accomplished in a manner that builds upon existing resource protection efforts in this area. Implementation of the strategies in this action plan will clarify each of the sites roles and responsibilities, increase coordination, resource and expertise sharing, and ultimately enhance resource protection and outreach efforts to local communities.
Increase the number of education and outreach programming efforts directed at communities in the NMA from 1,000 individuals in Year 1 to 5,000 individuals in Year 5.	2. One of the main purposes of this action plan is to ensure that the delivery of products, services and programs to communities in the NMA is increased. Implementation of this action plans targets outreach to local communities in the NMA. Some of the activities include schools and teachers, volunteers, fairs and festivals, visitor centers, public lecture series, etc.

Table XCN-2: Cross-Cutting Northern Management Transition Plan Timeline

Northern Management Area Transition Plan	Year 1	Year 2	Year 3	Year 4	Year 5
NMA Administration and Operations					
Strategy XNAO-1: Create a Multi-Functional HMB Regional Office					
Activity 1.1: Expand the existing Half Moon Bay (HMB) office, or relocate to a new location.			→		
Strategy XNAO-2: Evaluate the Delivery and Success of NMSP Programs and Services in the NMA					
Activity 2.1: Conduct an evaluation of the delivery and success of NMSP programs and services to local communities in the NMA.	→	→	→	→	→
NMA Resource Protection					
Strategy XNRP-1: GFNMS will be Responsible for Permit Activities in the NMA					
Activity 1.1: GFNMS will process permits within the NMA, except for water quality permits, which will continue to be overseen by MBNMS.	→	→	→	→	→

Northern Management Area Transition Plan	Year 1	Year 2	Year 3	Year 4	Year 5
Activity 1.2: GFNMS staff will take the lead in considering the development of protocols for a Special Use Permit for tow-in surfing at Mavericks as envisioned in the MBNMS revised management plan and coordinate such proposed actions with MBNMS staff.		→	→		
Strategy XNRP-2: GFNMS will be Responsible for Regulatory Activities in the NMA While Maintaining Maximum Consistency and Protection to Sanctuary Resources					
Activity 2.1: GFNMS staff will take the lead in evaluating a potential new dredge disposal site for Pillar Point Harbor should a detailed site proposal be developed by the San Mateo County Harbor District for submission to federal and state agencies.		→	→		
Activity 2.2: GFNMS staff will facilitate a public process in the next five years to consider whether the San Francisco Exemption Area ("the donut hole") should be included in the MBNMS.			→	→	→
Activity 2.3: The GFNMS and MBNMS Resource Protection Teams will closely coordinate on any future proposed regulatory changes that could impact the NMA or the other sanctuaries.	→	→	→	→	→
Strategy XNRP-3: GFNMS Staff Will Coordinate Existing and Emerging Resource Protection Issues in the NMA					
Activity 3.1: GFNMS staff will lead efforts to coordinate and implement JMPR site-specific activities to support resource protection and stewardship in the NMA and the delivery of services and programs to local communities.	→	→	→	→	→
Activity 3.2: GFNMS staff will lead efforts to consult and coordinate on resource protection issues with other local, state and federal resource management agencies in the NMA.	→	→	→	→	→
Strategy XNRP-4: GFNMS Staff Will Coordinate Enforcement Activities in the NMA					
Activity 4.1: GFNMS staff will oversee the planning and implementation of all NMA enforcement activities in the NMA and will coordinate with MBNMS to ensure consistency across the sites.	→	→	→	→	→
Strategy XNRP-5: GFNMS Staff Will Coordinate NMA Emergency Response Activities in the NMA					
Activity 5.1: GFNMS staff will lead and closely coordinate efforts to respond to emergencies in the NMA to ensure maximum resource protection to Sanctuary resources.	→	→	→	→	→
Strategy XNRP-6: MBNMS Water Quality Protection Program Staff Will Continue to Coordinate Water Quality Activities in the NMA					
Activity 6.1: Implement existing WQPP Activities.	→	→	→	→	→
Activity 6.2: Conduct Site Water Quality Needs Assessment.	→	→			
Activity 6.3: Review and issue water quality authorizations.	→	→	→	→	→
NMA Research & Monitoring					

Northern Management Area Transition Plan	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy XNRM-1: Share Information					
Activity 1.1: Develop and implement procedures for sharing information on existing research and monitoring projects and coordinate on future projects.	→	→	→	→	→
Strategy XNRM-2: Coordinate Research and Monitoring Information Dissemination					
Activity 2.1: Update, cross-link, and develop Web products for GFNMS, MBNMS and SIMoN websites.	→	→	→	→	→
Strategy XNRM-3: Collaborate on Sanctuary Advisory Committees and Working Groups on Research and Monitoring Issues Related to the NMA					
Activity 3.1: Assess current and future NMSP participation on technical advisory committees or working groups in the NMA (such as Fitzgerald Marine Reserve, MBNMS RAP).	→	→	→	→	→
Strategy XNRM-4: Collaborate on Volunteer Monitoring Efforts Related to the NMA					
Activity 4.1: Continue efforts to coordinate and collaborate Beach Watch and Beach COMBERS volunteer monitoring programs.	→	→	→	→	→
Strategy XNRM-5: Implement JMPR Site-Specific Research and Monitoring Activities in the NMA					
Activity 5.1: The GFNMS and MBNMS Research Teams will coordinate on the implementation of JMPR site-specific and cross-cutting ecosystem research and monitoring activities in the NMA.	→	→	→	→	→
NMA Education & Outreach					
Strategy XNEO-1: Transfer, Establish and Implement School Programs for the NMA					
Activity 1.1: Coordinate and implement both GFNMS and MBNMS classroom activities (i.e., Oceans Week, etc.) to promote a greater awareness of the Sanctuaries in schools.	→	→	→	→	→
Activity 1.2: Establish a Sanctuary education group comprised of teachers and other marine educators/communicators to share information and ideas.	→				
Activity 1.3: Expand the LiMPETS student monitoring program by identifying more potential locations along the NMA coastline and providing training to teachers and students.	→	→	.....	.....	..... →
Activity 1.4: Identify and pursue partnerships and funding opportunities to expand the MBNMS MERITO Program to the NMA.			→	→	→
Strategy XNEO-2: Develop and Implement Community Outreach and Stewardship Programs					
Activity 2.1: Represent the NMSP at local fairs and community events.	→	→	→	→	→
Activity 2.2: Develop and implement a lecture series for the NMA, consistent with lecture offerings in GFNMS and MBNMS.	→	→	→	→	→

Northern Management Area Transition Plan	Year 1	Year 2	Year 3	Year 4	Year 5
Activity 2.3: Coordinate and enhance citizen volunteer opportunities, including Beach Watch and Snapshot Day/First Flush to support resource protection objectives.	→	→	→	→	→
Strategy XNEO-3: Develop and Disseminate Outreach Materials in the NMA					
Activity 3.1: Disseminate existing GFNMS and MBNMS materials throughout the NMA.	→	→	→	→	→
Activity 3.2: Prepare and submit periodic articles on NMA issues for local and regional newsletters and other sanctuary publications.	→	→	→	→	→
Activity 3.3: Coordinate the development of maps for use by GFNMS, MBNMS and CBNMS, including a bathymetric map of the north-central California Sanctuaries and a GIS map of the three with all Sanctuary offices, anchorages/safe harbors and wildlife viewing.	→	→			
Activity 3.4: Engage the community and user groups on how best to inform them about issue-specific resource management issues (i.e., Mavericks, water quality, SF exemption area).	→	→	→	→	→
Activity 3.5: Develop NMA–related links between GFNMS and MBNMS websites. Explore options for Web collaboration beyond the NMA to strengthen relationships with the Internet-savvy San Francisco Bay Area population.	→	→	→	→	→
Strategy XNEO-4: Implement JMPR Site-Specific Education and Outreach Activities in the NMA					
Activity 4.1: The GFNMS and MBNMS Education Teams will coordinate on the implementation of JMPR site-specific education and outreach activities in the NMA.	→	→	→	→	→
Strategy XNEO-5: Pursue Collaborative Opportunities for Interpretive Signage and Facilities in the NMA					
Activity 5.1: Develop collaborative partnerships to create and install interpretive signage in the NMA as part of the long-range California-wide Sanctuaries Interpretive Signage Plan.	→	→	→	→	→
Activity 5.2: Complete development, fabrication, and installation of collaborative interpretive exhibit at Pigeon Point Light Station in partnership with California State Parks, MBNMS, and the San Mateo Coast Natural History Association.	→	→			

Legend:

→ Planned Activity

⇢ Proposed Activity, based on internal assessment

Table XCN-3: Estimated Costs to Implement the Cross-Cutting Northern Management Area Transition Plan
All costs for this action plan are for GFNMS only (as indicated by parenthesis) except where noted for MBNMS*

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
NMA Administration & Operations						
Strategy XNAO-1: Create a Multi-Functional HMB Regional Office	($33)	($33)	($48)	($48)	($33)	($195)
Strategy XNAO-2: Evaluate the Delivery and Success of the NMSP Programs and Services to the NMA	($8)	($8)	($8)	($8)	($8)	($40)
NMA Resource Protection						
Strategy XNRP-1: GFNMS Will Be Responsible for Permit Activities in the NMA	($23)	($52)	($52)	($18)	($18)	($163)
Strategy XNRP-2: GFNMS Will Be Responsible for Regulatory Activities in the NMA While Maintaining Maximum Consistency and Protection to Sanctuary Resources	($18)	($18)	($18)	($109.5)	($112)	($275.5)
Strategy XNRP-3: GFNMS Staff Will Coordinate Existing and Emerging Resource Protection Issues in the NMA	($16)	($16)	($16)	($16)	($16)	($80)
Strategy XNRP-4: GFNMS Staff Will Coordinate Enforcement Activities in the NMA	($16)	($61)	($61)	($61)	($61)	($260)
Strategy XNRP-5: GFNMS Staff Will Coordinate NMA Emergency Response Activities in the NMA	($16)	($61)	($61)	($61)	($61)	($260)
Strategy XNRP-6: MBNMS Water Quality Protection Program Staff Will continue to coordinate Water Quality Activities in the NMA	$50	$50	$50	$50	$50	$250
NMA Research & Monitoring						
Strategy XNRM-1: Share Information	($16)	($16)	($16)	($16)	($16)	($80)
Strategy XNRM-2: Coordinate Research and Monitoring Information Dissemination	($20)	($20)	($20)	($20)	($20)	($100)
Strategy XNRM-3: Collaborate on Sanctuary Advisory Committees and Working Groups on Research and Monitoring Issues Related to the NMA	($9)	($9)	($9)	($9)	($9)	($45)

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XNRM-4: Collaborate on Volunteer Monitoring Efforts Related to the NMA	($8)	($8)	($8)	($8)	($8)	($40)
Strategy XNRM-5: Implement JMPR Site-Specific Research and Monitoring Activities in the NMA	($9)	($9)	($9)	($9)	($9)	($45)
NMA Education & Outreach						
Strategy XNEO-1: Transfer, Establish and Implement School programs for the NMA	($30)	($30)	($130)	($130)	($130)	($450)
Strategy XNEO-2: Develop and Implement Community Outreach and Stewardship Programs	($20)	($20)	($20)	($20)	($20)	($100)
Strategy XNEO-3: Develop and Disseminate Outreach Materials in the NMA	($30)	($30)	($30)	($30)	($30)	($150)
Strategy XNEO-4: Implement JMPR Site-Specific Education and Outreach Activities in the NMA	($20)	($20)	($20)	($20)	($20)	($100)
Strategy XNEO-5: Pursue Collaborative Opportunities for Interpretive Signage and Facilities in the NMA	($40)	($40)	($20)	($20)	($20)	($140)
Total Estimated Annual Cost for MBNMS Only	***$50***	***$50***	***$50***	***$50***	***$50***	***$250***
* Cost estimates are for both "programmatic" and "base" (salaries and overhead) expenses.						
** Contributions from outside funding sources also anticipated.						
**All costs for this action plan are for GFNMS only except where noted for MBNMS						